Summer 2009

EDUCATION next

A JOURNAL OF OPINION AND RESEARCH

Virtual School, Real Success

Florida innovation defies the political odds

BILL TUCKER

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IN THIS ISSUE:

Troubled Kids in the Classroom, Academic Tracking in Kenya, Florida's Hispanic Students, Informed Public Opinion, Teacher Specialization, NCLB's Future, Schools 2025

CONTRIBUTORS: MATTHEW LADNER, MARGUERITE ROZA, DIANE RAVITCH, JOHN CHUBB, FREDERICK HESS, WILLIAM HOWELL, SCOTT CARRELL, MICHAEL KREMER, ESTHER DUFLO

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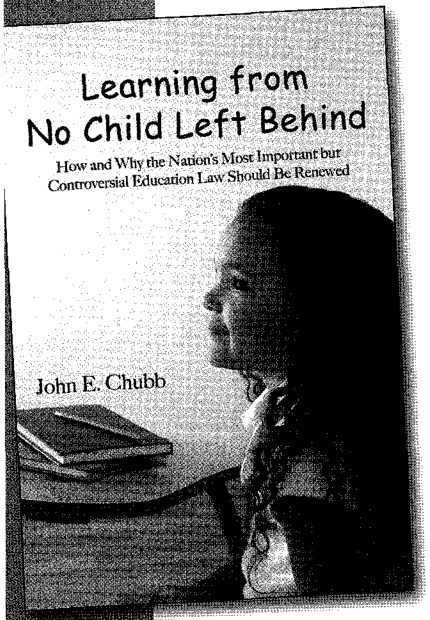
Learning from
No Child Left Behind
How and Why the Nation's Most Important but
Controversial Education Law Should Be Renewed
John E. Chubb

Learning from No Child Left Behind

How and Why the Nation's Most Important but Controversial Education Law Should Be Renewed

John E. Chubb

John E. Chubb, writing on behalf of the Koret Task Force on K–12 Education, presents a convincing case that, despite the controversy it has ignited, the No Child Left Behind (NCLB) law is making a positive difference and should be renewed. He outlines ten specific lessons and recommendations that identify the strengths and weaknesses of NCLB and offers suggestions for improving the law, building on its current foundation.

Some of the author's suggestions for improvement include the development and implementation of a voluntary system of national academic standards, a user-friendly national database of the accountability status of every school in the nation on the Department of Education's website, expansion of school choice, broadening the tested curriculum to include science and social studies, better teacher incentives, and other key proposals.

John E. Chubb is a distinguished visiting fellow at the Hoover Institution, a member of its Task Force on K–12 Education, and chief development officer of Edison Learning, which he helped found in 1992. He has authored numerous studies of student achievement and education reform, including *Liberating Learning* in 2009.

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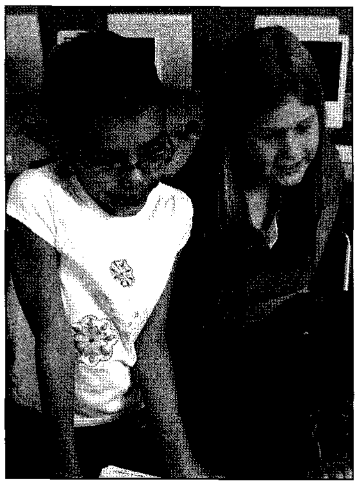

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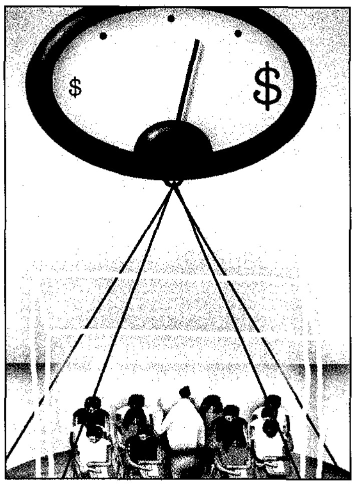

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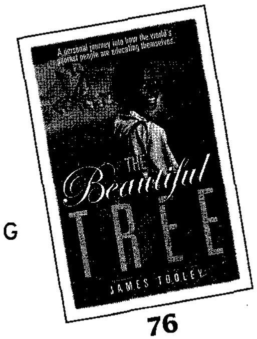
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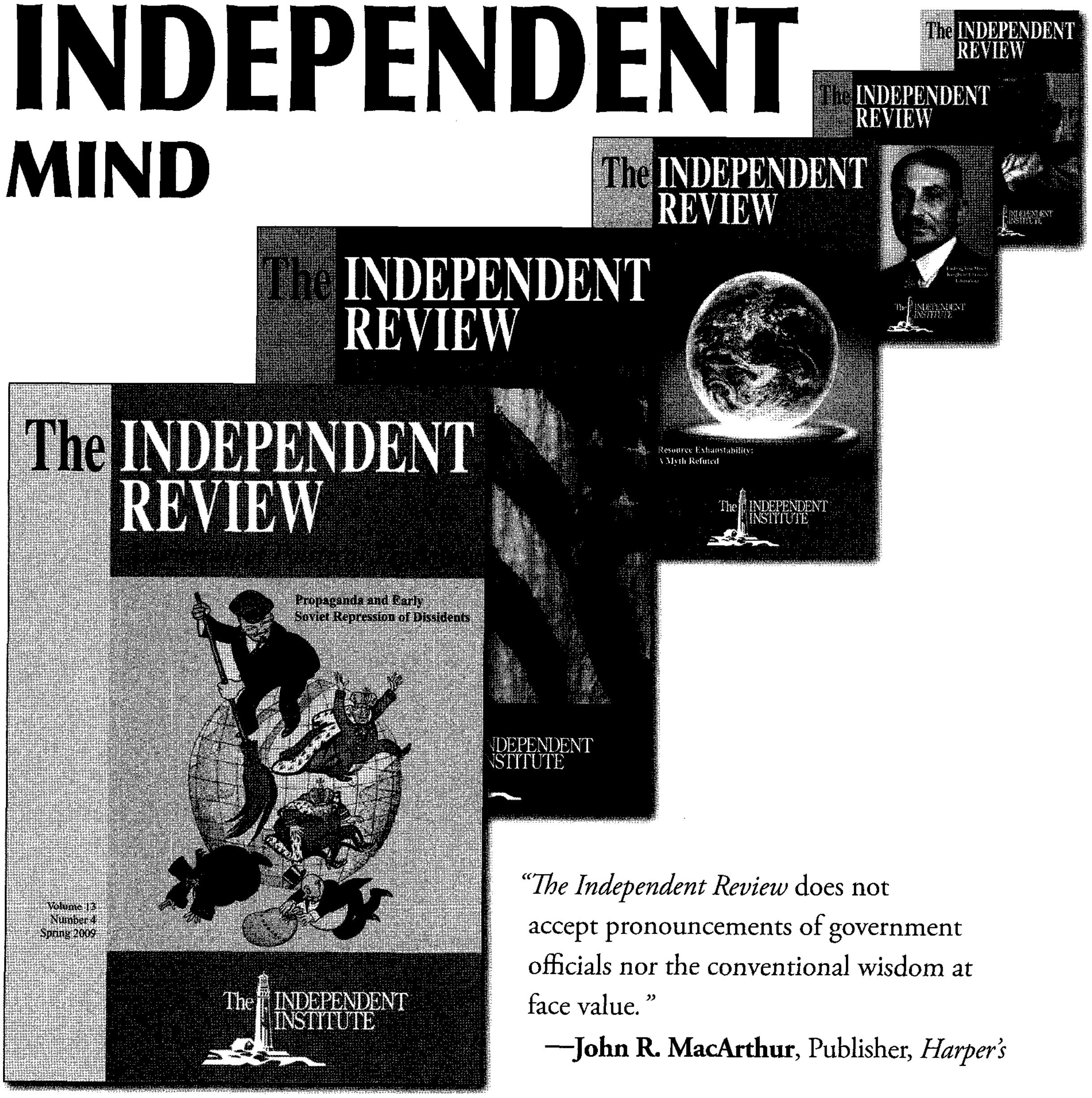
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Virtual School Succeeds

But can we be sure about the students?

As the visitor approaches the handsome new quarters of Florida Virtual School near Orlando's Valencia Community College, nothing tells him that he is about to enter the nerve center of one of the state's largest schools. The four-story, rectangular, well-windowed structure is devoid of markings save for the massive number 2145, presumably the structure's address, not an estimate of the year virtual education is to be fully realized.

Walking out of the second-floor elevator, one enters a football-field-length waiting area with a single, if very substantial, desk visible down near where a virtual goal post would stand. As the day progresses, one moves from one capacious office to another, all decked out with large, well-appointed work stations and sizable meeting areas that enjoy the Sunshine State's prized natural resource. Florida Virtual School is clearly doing very well (see "Florida's Online Option," *features*, page 12).

So well that the visitor is regularly informed that the furnishings have been donated and the school's lease costs less than the rent once paid for cramped quarters within the Orange County school system.

Florida Virtual's success is no accident. Its chief executive officer, Julie Young, has constructed an energetic, dedicated team who watch the clock no more closely than does the inner core of an entrepreneurial Internet start-up. The school's mission is carefully crafted to fit in with—not fight with—that of Florida's school districts. The school offers courses that are not available at district schools, or that do not fit well into a student's schedule, or that a student has to take for a second time.

Florida Virtual also offers instruction to home schoolers. But it eschews any hint of social conservatism in favor of a progressive-style approach that frees students from the prison of the bell and clock. Students are even given a four-week grace period during which they can withdraw from a course without penalty.

Florida Virtual does not collect any state dollars if a student withdraws or does not earn at least a D. If that is not much of a standard, it beats the one Florida imposes on its district schools. They get their state per-pupil funding whether a student stays or drops out, passes or flunks.

Some competition between the virtual school and district schools persists. If a student takes two semesters' worth of virtual courses, it costs the district one-sixth of the state's per-pupil allocation. But Florida Virtual can save districts headaches by offering replacement courses if a district loses a physics teacher or can't afford to offer an elective course. So the virtual school's course enrollments have soared above the 150,000 mark.

Florida Virtual can save districts headaches by offering replacement courses if a district loses a physics teacher or can't afford to offer an elective course.

One of the school's most popular courses—physical education—is required of all high school students, but is one that some do not wish to pursue via the school locker room. The course emphasizes good health practices. Students report their health objectives, exercise and eating habits, and changes in pulse and weight. The course appears to have provided one student with the incentive to lose 80 pounds.

Every effort is made to make sure the academic work submitted is the student's own. Students take tests throughout the course period, and they write essays and papers. These are electronically scanned to check and see if material was copied from another student paper or from something on the Internet. Teachers grade and give feedback on assignments, and they call students at least once a month, and much more frequently if distress signals are detected. An honor code is given heavy emphasis.

Only one barely perceptible fly can be found in the virtual ointment: As elsewhere in American education, but even more so when teacher and student are physically separated, it is not always easy to detect whether students have mastered the material. Apart from those in Advanced Placement or other courses subject to an external exam, only a small portion of the total, students take no proctored examinations. But without such exams, the teacher in the end must infer just how much is being learned. May both virtual and district schools learn how to surmount this challenge well before the year 2145.

— Paul E. Peterson

MISSION STATEMENT In the stormy seas of school reform, this journal will steer a steady course, presenting the facts as best they can be determined, giving voice (without fear or favor) to worthy research, sound ideas, and responsible arguments. Bold change is needed in American K-12 education, but *Education Next* partakes of no program, campaign, or ideology. It goes where the evidence points.

The President's Accreditation Plan

One of the most problematic planks in President Obama's education platform ("Straddling the Democratic Divide," *features*, Spring 2009) was the proposal that all schools of education must be accredited. In theory, it seems desirable to have schools of education reviewed by outside authorities. But accreditation by the National Council for Accreditation of Teacher Education (NCATE) and the Teacher Education Accreditation Council (TEAC), both private agencies, has so far failed to assure a high level of quality in training institutions. Arthur Levine's 2006 study, *Educating School Teachers*, for example, found no significant difference in mathematics or reading achievement in students taught by teachers educated at NCATE- and non-NCATE-accredited institutions. It also found low-quality programs that had earned NCATE accreditation.

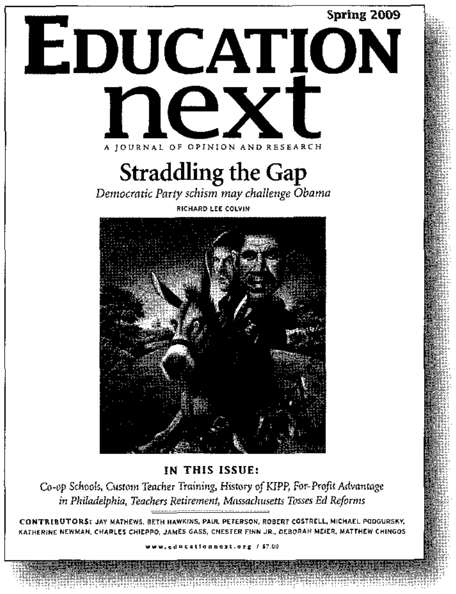
Why doesn't accreditation improve the quality of teacher preparation programs as judged by measurable increases in learning outcomes for the students in the classes of their graduates? The Achilles heel of the accreditation process is the composition of the reviewers.

NCATE is composed only of educational, not discipline-based, organizations, and its reviewers are chiefly if not solely from other schools of education. This means, for example, that a licensure program for history or U.S. government teachers is NCATE-evaluated by academic and professional standards developed by members of the National Council for the Social Studies, not by the standards developed by members of a professional organization for historians or political scientists.

Having only education school faculty as the peer reviewers for accreditation is rather like having visiting foxes advise the local foxes on how well they have designed the lock on the chicken coop. The absence of subject matter experts (as well as members of other professions, the educated public, and the state legislature) on review teams keeps anti-disciplinary and anti-instructional theories dominant in our education schools and helps them to avoid criticisms of academically weak teacher preparation programs.

Levine would like a new accrediting agency in which the nation's best-known education schools (like Teachers College, Columbia University) set professional standards. However, until the reviewers bring a broader and academic perspective to their observations, we cannot count on accreditation to upgrade the quality of our teacher preparation programs. In fact, we might get more academically qualified and pedagogically effective teachers if we simply eliminated "completion of an approved program" from licensure requirements.

SANDRA STOTSKY
Professor of Education
University of Arkansas



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Straddling the Gap
Democratic Party schism may challenge Obama
RICHARD LEE COLVIN
IN THIS ISSUE:
Co-op Schools, Custom Teacher Training, History of KIPP, For-Profit Advantage in Philadelphia, Teachers Retirement, Massachusetts Tosses Ed Reforms
CONTRIBUTORS: JAY MATHEWS, BETH HAWKINS, PAUL PETERSON, ROBERT COSTRELL, MICHAEL PODGURSKY, KATHERINE NEWMAN, CHARLES CHIEPPO, JAMES GASS, CHESTER FINN JR., DEBORAH MEIER, MATTHEW CHINGOS
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Bay State

Pioneer Institute has launched yet another attack on the education record of Governor Deval Patrick and the Commonwealth of Massachusetts ("Accountability Overboard," *features*, Spring 2009). The following is just one of many examples of errors purposefully made by Pioneer. They write, "Results in September 2008 showed a sharp drop in MCAS pass rates and flat or declining scores in the elementary and middle school grades."

This is simply wrong. Pass rates improved or stayed steady on 12 of the 16 tests administered. Math results reached an all-time high, including improvement in every grade.

The authors praise the work of Massachusetts students in citing the recent results on TIMSS, pointing to this exceptional performance as an illustration of the influence of status quo reforms while later falsely condemning students' MCAS results to suggest a downward slide in performance.

Students have demonstrated consistent improvement on the MCAS over the years, improvement that has continued since Governor Patrick took office in 2006. However, the results mask a persistent achievement gap that must be addressed. For example, on the grade 10 MCAS science exam, just 28 percent of black students and 24 percent of Latino students scored proficient or higher compared to 65 percent of white students and 68 percent of Asian students. These results show us that while we have been successful with some students, we are woefully behind with others. Our mission is far from complete.

Pioneer's vision of the future is apparently "more of the same," notwithstanding the data on gaps. The Pioneer authors counsel a strict adherence to the status quo, defying data telling us that education reform in Massachusetts must significantly improve if we are to close achievement gaps and provide *all* students with a 21st-century education. Governor Patrick believes a bolder, more sophisticated approach is required, and I invite readers to judge his agenda on its merits at http://www.mass.gov/Eeoe/docs/ma-edplan-finalrev1.pdf.

Paul Reville
Secretary of Education
Commonwealth of Massachusetts

Charles Chieppo and James Gass respond:

MCAS math scores in 2008 were up by just a single percentage point in three elementary grades, and early-grade MCAS English Language Arts (ELA) scores, which are the best predictors of future success, fell the most. In fact, ELA scores for 2008 were either down or flat in six out of seven grades.

As for simultaneously pointing to stagnating MCAS and excellent TIMSS scores, 2008 was the only time Massachusetts students have participated in TIMSS; those scores are the fruits of more than a decade of reform. MCAS scores are subject to year-to-year comparison.

It should be noted that between 1998 and 2005, Massachusetts was among the states that saw the most narrowing in achievement gaps.

We do acknowledge two errors in the printed version of our article. The Readiness Finance Commission favored raising the state *sales* tax rather than the income tax from 5 to 6 percent. The waiting list for charter schools in Boston is about 7,000 students, not 1,720. The Patrick administration's poison pill–laced plan to raise the cap on charter schools in some districts was proposed too late to be discussed in our article.

We should also have disclosed Mr. Gass's previous employment at the Massachusetts Office of Educational Quality and Accountability. He left that agency in 2005.

Scaling Up KIPP

As Jay Mathews's portrait reveals ("Work Hard. Be Nice." *features*, Spring 2009), KIPP students succeed because they benefit from extraordinary teachers. Where do these educators come from? I examined five KIPP schools and found that 72 percent of their teachers and school leaders had attended top undergraduate institutions—ranked "very competitive" to "most competitive" by Barron's. That compares to 19 percent of public school teachers generally.

The labor pool of such elite college graduates is small. Even if 1 in every 10 of these graduates entered teaching for two years (average tenure at KIPP-like "No Excuses" charter schools) before moving onto other careers, they would provide only 6 percent of the some 450,000 teachers currently working in the member districts of the Council of Great City Schools (the nation's 66 largest urban public-school systems).

The development of a new wave of intellectual property for schools may in time permit a broad swath of career educators to achieve KIPP-like results.

Simply put, we might have enough of these teachers to staff a few hundred more No Excuses schools, but not a few thousand more, and certainly not enough to reach every disadvantaged child in America.

That's why recent plans by the Bill & Melinda Gates Foundation and others to sponsor "tool providers" should be applauded. The development of a new wave of intellectual property for schools may in time permit a broad swath of career educators to achieve KIPP-like results. Consider two such new tools. Teachers will soon be able to access superior resources from automated systems that integrate and mine contributions from hundreds of star educators. No Excuses teachers may find it intellectually challenging to craft their own curricula, pacing charts, lesson plans, curriculum tests, and the like, all keyed to state standards, but these demands also contribute to long hours and high teacher turnover. Such tasks needn't be tackled anew by individual teachers.

Similarly, the methods of star teachers—how they construct a culture of high expectations in their classroom and deliver vibrant and effective instruction—are at last being codified as specific techniques that can be mastered by novice teachers. Prototypes of these tools, while little known, exist today.

As KIPP has demonstrated, wholesale social transformation is not a precondition for narrowing the achievement gap. But human-capital limits may constrain the model's reach. To plot a course from KIPP's individual successes toward achievement at scale takes nothing away from the organization's unprecedented accomplishments.

Steven F. Wilson
President
Ascend Learning

Other Routes to Teaching

The Newton Teacher Training Institute is an "alternative" teacher-training program in Massachusetts, similar to those described in Katherine Newman's article ("Teacher Training, Tailor-Made," *features*, Spring 2009). I suggest that the best phrase to describe these programs is "practice-based." They are founded on the idea that the only way to learn to teach well is to practice teaching in a real school setting.

The article overlooks a significant benefit of practice-based programs: the creation of a true career path for talented classroom teachers. The career path in teaching is notoriously flat. Excellent teachers receive the same pay as colleagues who are equally experienced but not nearly as talented, and the responsibilities of a 20-year veteran are virtually indistinguishable from those of a second- or third-year beginner. The only way up in teaching is out of the classroom, through a "promotion" to an administrative job. Practice-based teacher-training programs offer a way out of this trap. Excellent teachers can become program faculty, where their talents in the classroom are leveraged for the benefit of future generations, and where they can earn stipends and status. In a practice-based teacher education program with rigorous faculty selection criteria and high admissions standards, the best teachers would train the best teaching candidates. This approach should not, in my view, be seen as an "alternative" to "regular" teacher preparation; it should be the way high-quality teacher preparation is done. The end result would surely be positive for the teaching profession, for students, and for society.

Jonathan Bassett
Program Director
Newton Teacher Training Institute

Philadelphia Story

Paul Peterson and Matthew Chingos's conclusion that for-profit entities outperformed nonprofit entities in their management of Philadelphia schools from 2002 to 2008 is not in and of itself a reason for our members to celebrate ("For-Profit and Nonprofit Management in Philadelphia Schools," *research*, Spring 2009). Rather, it was the willingness of Pennsylvania and Philadelphia to innovate, apply new ideas, and reach beyond the status quo on behalf of the children of Philadelphia that should be roundly applauded.

For-profit providers of educational products and services, including members of the Education Industry Association, whether school management companies, tutoring providers, or developers of learning materials and technologies, view students, parents, school districts, and state departments of education as customers. They value innovation, expect to be held accountable for the quality and effectiveness of their programs, and understand the consequences of failure. They understand that they do not have all the answers to education's challenges and problems and that such solutions are produced only through cooperative public-private partnerships in which the parties view themselves as collaborators and not competitors.

Excellent teachers receive the same pay as colleagues who are equally experienced but not nearly as talented.

The "Philadelphia story," then, is not so much a tale of for-profits "winning" against nonprofits or district-run schools, but a valuable lesson in how to approach education reform effectively and produce real results. Indeed, the real victors in Philadelphia, and elsewhere where such public-private partnerships exist, are the students.

Steven Pines
Executive Director
Education Industry Association

Selling Success

Emily Hassel and Bryan Hassel ("The Big U-Turn," *features*, Winter 2009) are right to examine how public schools could learn from successful corporations and other public programs. One of the underlying themes of those successful turnarounds is enhancement of the public's perception of their success. The new carpets at Continental Airlines and the crackdown on petty crime in the New York Police Department were put into place to convince the general public that these organizations were doing well.

This focus was not on the core businesses of these organizations, or even their customers per se, but rather the general public, who might become customers and supporters of the program. For public schools, following their lead would mean paying closer attention to that segment of the population who are not the parents of current students, the general tax-paying public, who provide the majority of support for the schools.

For example, schools might focus on those few places where the public can see students and teachers during the school day, such as on field trips or at dismissal. What impression does the public get of a school if the students are blocking traffic and cursing? Paying more attention to student behavior at these times could directly affect the public's perception of school success.

Another area of emphasis might be the kind of data released to the public. Currently, schools focus on data that are useful primarily to parents, such as grades, achievement scores, awards, etc. The public wants to know about the success of the schools' graduates: the adults they hire, work with, and bump into on the street. It is the graduates, not the students, who provide the benefit they get from their support of the schools.

Peter Dodington
Teacher
Bronx Latin School

Teacher Co-ops

While attention is welcome, it's disappointing that two recent studies, and other insights from Minnesota New Country School (MNCS), the original teacher cooperative, were not included in "Teacher Cooperatives" (*features*, Spring 2009). Moreover, much of the reporting focuses on Milwaukee schools, where teachers are *not* allowed to set their salaries and benefits, key parts of the teacher co-op idea according to MNCS cofounder and EdVisions Cooperative director Doug Thomas.

While almost half of MNCS students are low income, and more than 30 percent have some form of disability, studies by Scott Wurdinger and Jennifer Rudolph of Minnesota State University, Mankato, and by EdVisions Cooperative cofounder and staffer Ron Newell found results worthy of note: the average ACT score of MNCS students (and EdVisions Cooperative members) is higher than the national average. More than 90 percent of MNCS alumni responding to a survey have enrolled in postsecondary education and report that MNCS gave them an advantage over college classmates. Sixty-nine percent of MNCS alumni responding had completed a two- or four-year postsecondary degree. Student surveys show growing enthusiasm for learning, self-confidence, and goal setting, compared to declines among students in many larger district high schools.

MNCS agrees on the need for high standards and uses projects to help students reach them. MNCS recognizes that projects like documenting and testifying to legislators on mutated frogs near the school (which led to national attention because others later found similar phenomena) help develop problem-solving, research, and public-speaking skills. But projects aren't sufficient, for example, to master algebra.

Though she mentions MNCS, it's not clear whether author Beth Hawkins actually visited the school. No MNCS student, parent, or teacher is quoted. Having helped a little to start MNCS, I'm not neutral. But I believe strong academic results and key teacher cooperative details deserved more detailed coverage. There are good reasons that the Bill & Melinda Gates Foundation recently gave MNCS more money to replicate itself.

Joe Nathan
Director, Center for School Change
University of Minnesota

feature

Teacher Cooperatives

What happens when teachers run the school?

BY BETH HAWKINS

Book Alert

I was shocked by the fundamental distortion of my ideas in the review of my book, *The Global Achievement Gap* (*book alert*, Winter 2009). I wonder what evidence the reviewer could provide from my book to substantiate this assertion: "He deplores results-based accountability for schools, educators, and kids." Unlike many so-called progressive educators, I am a strong advocate for accountability. I spend most of one chapter analyzing the difference between good and bad tests. My critique of No Child Left Behind is precisely that the standards for accountability, which rely mainly on multiple-choice factual recall tests, are too low and are putting our country at a serious competitive disadvantage. I advocate for a national writing test and use of the Collegiate Learning Assessment and PISA tests for accountability purposes. And I spend an entire chapter discussing the importance of holding schools of education and teachers to a much higher standard of demonstrated excellence for certification and recertification, and suggest ways of phasing out the tenure system.

Finally, I describe two public charter schools that succeed in teaching their predominantly minority students both rigorous academic content and 21st-century skills, while holding themselves to the standard of graduating 100 percent of their students, and sending nearly all to four-year colleges.

If this is not accountability, then what is?

Tony Wagner
Change Leadership Group
Harvard Graduate School
of Education

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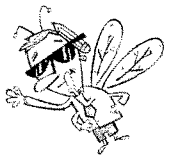

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Florida's charters under attack

BY JOSHUA DUNN AND MARTHA DERTHICK

Florida's public school establishment could hardly have a better friend than Florida's courts.

In *Bush v. Holmes* (2006), the state supreme court struck down Florida's Opportunity Scholarship Program, a small voucher program serving fewer than 800 students, on the grounds that it fell afoul of the state constitution's "uniformity" clause, which allegedly prevents the state from funding any program outside of or "parallel" to the public school system.

Had the commission been able to develop as a real alternative to local authorization, larger numbers of charter schools could have been established.

Florida judges have been at it again. Late in 2008, a lower court struck down the Florida Schools of Excellence Commission, which was formed at Governor Jeb Bush's urging in 2006 to provide alternative authorization for charter schools. Without the Excellence Commission, only local school boards can authorize new charter schools. School districts understandably can be loath to see their pupils—and, more important, the state funding that follows them—go to charter schools.

The statute that created the Excellence Commission allowed local school boards to petition the state board of education to retain exclusive authority to sanction charter schools within their districts. Thirty-one of Florida's 67 local school districts requested such exemptions, but the state board granted only three: to Orange, Polk, and Sarasota, districts that had already created a significant number of charter schools (20, 24, and 9, respectively).

In response to having been denied an exemption, 14 districts led by Duval County challenged the constitutionality of the commission and thus sought to preserve their exclusive authority over chartering. The attorney representing the Duval school board, Ron Meyer, had also represented the Florida Education Association, the statewide teachers union, when it challenged the Opportunity Scholarship program in *Holmes.*

The plaintiff districts claimed that the commission fatally violated a provision of the state constitution holding that the local "school board shall operate, control and supervise all free public schools within the school district." The court agreed with the school districts and went beyond just striking down the commission. Harking back to *Bush v. Holmes*, it ruled that the "statute [creating the commission] permits and encourages the creation of a parallel system of free public education escaping the operation and control of local elected school boards."

The logic of the ruling leaves many other programs vulnerable to legal challenge. Florida's virtual school, university-run laboratory schools, schools for juvenile offenders, a school for "high risk" boys including sex offenders, and the state school for the deaf and blind would all count as "parallel" public schools uncontrolled by local boards. Meyer declined to speculate if these other programs would be subjected to a legal challenge.

Members of the commission foresaw the ruling but expected the state board of education to appeal. The board said that "the issue received a fair hearing" and claimed that it "had no legal basis to pursue an appeal." The Republican governor, Charlie Crist, supported the board's decision, prompting education reformers to lament the loss of Jeb Bush, who they believed would not have been so submissive.

Supporters of the commission argued that the state constitution makes public education a shared responsibility between the state and local school districts. When the state bears significant funding responsibilities and monitors curricula, teaching credentials, and student assessment, school boards are not exclusively operating, controlling, and supervising schools in their districts. On the other hand, an appeal would have taken the issue to a state supreme court in which success was unlikely. Four of the justices in the *Bush v. Holmes* majority are still on the seven-member court although one of the four is subject to mandatory retirement this year. Avoiding an adverse decision from the supreme court could make it easier to undo the lower court ruling should conditions become more favorable.

As with the Opportunity Scholarship Program, the elimination of the Excellence Commission will not have a significant immediate effect on Florida schoolchildren. Of 54 charter requests submitted, only one eventually received approval. Had the commission been able to develop as a real alternative to local authorization, larger numbers of charter schools could have been established, and that likely would have created a powerful political constituency in support of charter schools, capable of resisting jealous attacks from the public education establishment.

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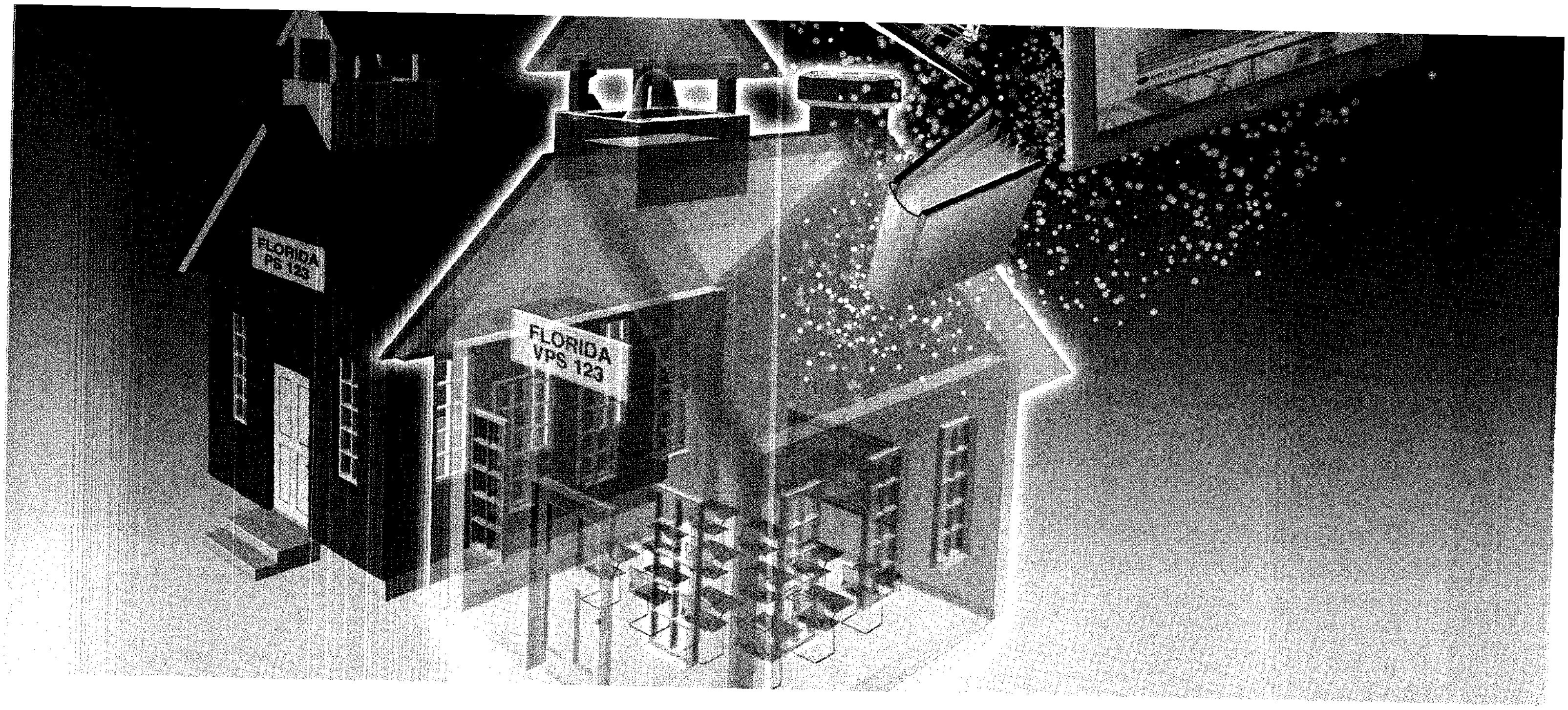
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feature

Florida's
ONLINE OPTION

By BILL TUCKER

Education reform often appears a zero-sum battle, one that pits crusaders demanding accountability and choice against much of the traditional education establishment, including teachers unions. The political skirmishes in Florida, including court fights over vouchers and charter schools, and ongoing struggles over a parade of different merit pay plans for teachers, give credence to the standard portrayal.

But state-run Florida Virtual School (FLVS), a decade-old public education experiment, departs from this conventional script. This most radical of choice-based schools—where students and teachers never meet in physical classrooms and state funding flows on a performance-based, demand-driven model—has largely avoided the political and legal tangles that have stymied other reform efforts. And, free from the geographic constraints and facilities costs of traditional schools, FLVS has grown rapidly, scaling up to match the considerable demand for the school's courses. In the 2008–09 school year, approximately 84,000 students will complete 168,000 half-credit courses, a 10-fold increase since 2002–03.

To accomplish this rare feat, the school has adroitly walked a fine line. It has built a distinct educational philosophy, approach, and culture. At the same time, it has maintained its identity as a public school and remains part of the system. This unique positioning, far enough outside to do business in a different way yet sufficiently inside the system to avoid political backlash, has been a key element in the school's success. Mark Pudlow, spokesperson for the Florida Education Association, the teachers union that has fought pitched battles against many of Florida's recent initiatives, acknowledges

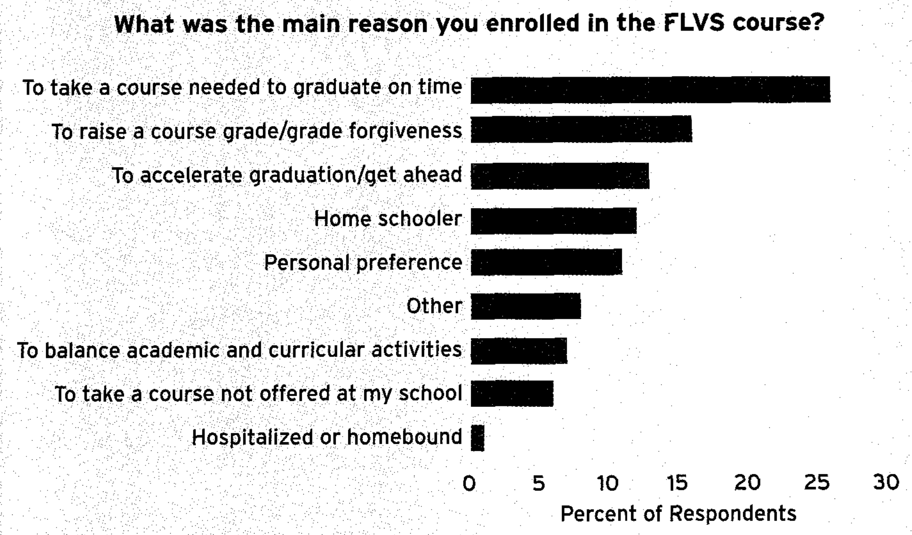
Virtual school offers template for reform

ILLUSTRATION / MARC PHARES

the result of Florida Virtual School's approach: "[It] never developed the kind of mistrust that tends to be associated with other reform ideas." Savvy leadership, strong political support, and a series of well-timed decisions around growth have helped FLVS become the country's most successful virtual school, and perhaps one of its most important reform stories as well.

Why Virtual? (Figure 1)

Students most commonly report the desire to graduate on time as their motivation for enrolling at Florida Virtual School (FLVS).



SOURCE: Florida Virtual School, *2007–2008 Student Survey*

School on Demand

FLVS is a supplemental virtual school: most students attend brick-and-mortar schools and take FLVS courses in addition to their traditional classes. While the vast majority of FLVS students come from district schools (82 percent in 2007-08), the school is open to charter, private, and home-schooled students (see "Virtual Schools," *forum*, Winter 2009). Much of the school's recent growth has been driven by minority enrollments. Between June 2007 and July 2008, African-American enrollments grew by 49 percent, Hispanic enrollments by 42 percent, and Native American enrollments by 41 percent. Students enroll for a variety of reasons, but most come to fulfill graduation requirements, make up credits for missed or failed classes, or take Advanced Placement (AP) and other courses that are not available at their physical school (see Figure 1).

The FLVS motto, "any time, any place, any path, any pace," emphasizes the school's flexible and mastery-based approach to learning. Here, the content remains constant, but the time required—be it 16, 18, or 22 weeks—adjusts. Students at FLVS choose an accelerated, traditional, or extended pace for a particular course, taking extra time if needed to review and receive additional guidance on lessons or move through a course at a quicker pace than is typical. Moreover, FLVS students don't have to wait for the semester to begin; they can choose the month in which they would like to start.

While its courses are virtual, FLVS strives for highly personalized instruction. The school employs more than 715 full-time and 29 adjunct teachers—all Florida-certified and "highly qualified" under the federal No Child Left Behind law. Depending on the course, teachers use a variety of methods to engage students, including live one-to-one or small group virtual whiteboard sessions, asynchronous discussion, and

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even a new experimental, immersive online game for an American history course. Given the school's flexible pacing, there isn't a set class size, but full-time teachers are limited to 150 students each and individualized feedback is extensive. Instructors are expected to respond to student questions and provide comments on assignments within 24 hours. In addition, teachers phone students at least monthly, many times using oral assessments to ensure that students' work is their own. Via the online course site, teachers post syllabi, readings, assignments, and other course materials.

Non-Adversarial Relationships

FLVS's "inside the system" status originated in 1995 in efforts to develop Internet-based high-school programs in two Florida counties, Alachua (Gainesville) and Orange (Orlando). Both districts launched pilot programs and then formed an alliance to compete for state grant funding. In August 1997, FLVS began as Florida High School, with 77 course enrollments.

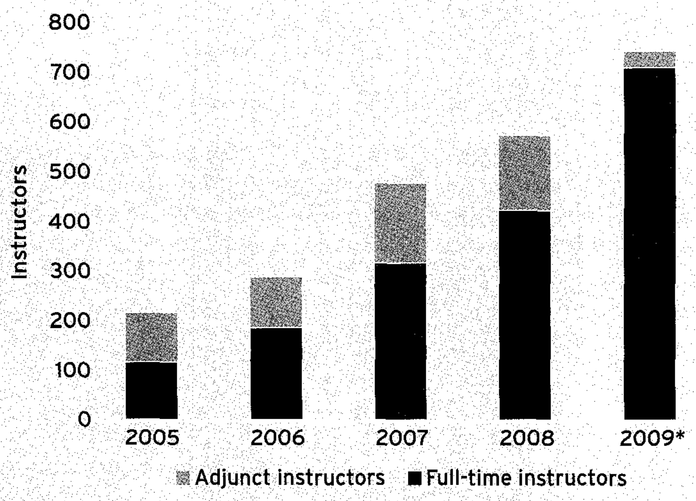
Nicholas Gledich, supervisor of Orange County's initial program (he now serves as chief operating officer of Orange County Schools and is an FLVS trustee), recalls that from the beginning the school made a concerted effort to build relationships with a wide range of constituencies. While there was strong initial interest from home-schooling families, he says, it was important "to reach a diverse group of students" and establish "personal contact with districts and schools."

Julie Young, who at the time worked for Gledich and is now CEO of FLVS, points to another important, early decision that helped set the precedent for a nonadversarial relationship with traditional district schools. Rather than become a diploma-granting institution and directly compete with traditional high schools, FLVS chose to supplement the brick-and-mortar high school. Instead of offering a full-time program that drew students away from traditional settings, the program focused on filling curricular gaps and expanding access to additional courses and learning opportunities. Young says the decision was "a huge deal." We didn't steal students from traditional schools; we "gave kids back to their schools in good shape."

The grant-based funding mechanism provided early capacity-building funds, allowing FLVS to establish its courses, faculty, and credibility. Importantly, funds flowing to FLVS were over and above those received by traditional schools. Traditional high schools did not lose funds when students opted to take classes with FLVS. "If we went after FTE [regular school funding] we would be putting our head in the lion's cage," says Frank Brogan, Florida's commissioner of education at the time of the school's founding and later, in 2000, lieutenant governor under Jeb Bush. The fights begin "when you go after people's money."

Full Employment **(Figure 2)**

As demand for its courses has grown, Florida Virtual School has increasingly relied on full-time instructors.



* Teacher count was accurate as of February 18, 2009.

SOURCE: Southern Regional Education Board; Florida Virtual School

CEO Julie Young (second from left) and FVLS board members present the "FLVS Leadership Award" for outstanding support and advocacy of on-line learning to Florida state senator Daniel Webster.

Success Pays

From 1997 to 2003, FLVS enjoyed impressive growth, from the initial 77 course enrollments to more than 12,000. The school's funding continued on a year-to-year appropriation, but strong political support in the governor's office, the state department of education, and key legislative committees ensured that total funding rose from $1.3 to $6.9 million in the same time frame.

While FLVS's political support was impressive, the annual appropriations funding mechanism not only was risky—it was subject to year-to-year budget decisions—but also essentially capped growth. And, despite the strong grant funding, the school could not keep up with student demand. In the summer of 2002, 8,000 students were on FLVS waiting lists after traditional summer school classes fell victim to budget cuts. The school decided it was time to seek a permanent funding mechanism through inclusion in the state's school funding formula. Not only had the school proved highly effective and popular, but it had also grown large enough to develop its own political constituency, serving students from across Florida's legislative districts.

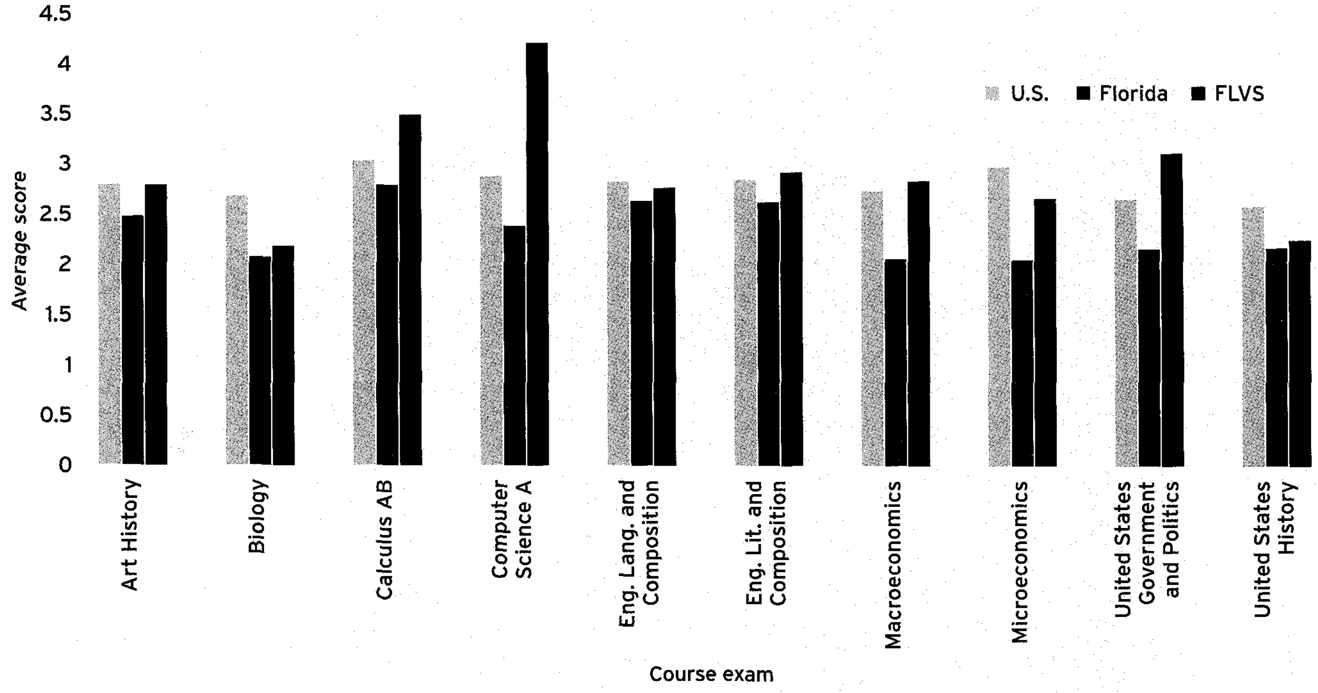
In 2003, the Florida legislature voted to establish a performance-based funding model for the school. Under this model, the school's funding is based on students' successful completion of their courses, a step that places far more pressure on FLVS to ensure its students' success than exists in traditional public school systems. Florida funds six credits per high-school student per year, so each time a student successfully completes a one-credit course, FLVS receives one-sixth of its per-pupil funding level ($1,054 per credit for 2008–09). Brogan calls this act an "absolute statement that the program had arrived." This critical legislative action established the school as a permanent component of the state's funding formula, providing stable and predictable funding outside of the yearly legislative allotment.

The school employs more than 715 full-time and 29 adjunct teachers, all Florida-certified and "highly qualified" under the federal No Child Left Behind law.

For the first time, this action also put FLVS in competition for funding with traditional school systems. "We would have preferred that it would have been funded outside the FEFP [Florida Education Finance Program]," said Ruth H. Melton, the director of legislative relations for the Florida School Boards Association, in a June 2003 *Education Week* article reporting on the legislation. Despite this opposition, FLVS was only a minor irritation among a number of controversial education reform programs. Melton concluded, "school boards are less concerned about losing funding to the virtual school than to the various voucher programs." Former Florida

Strong Showing (Figure 3)

Students who completed Advanced Placement (AP) courses at FLVS had higher average scores on 2008 AP exams than Florida students overall, and in several subjects outscored the nation. However, these data by themselves cannot tell us whether AP students at FLVS are taught more effectively or are higher-performing students in the first place.



SOURCE: Florida Virtual School

governor Jeb Bush, reflecting on the legislative action, echoed Melton's sentiment: "[At the time] we were doing so many different things that were provocative, this didn't seem as radical."

According to state rules, a student's full-time school may not deny access to courses offered by FLVS. Taken together, the performance-based funding model and school choice provisions provide incentives for FLVS to be responsive to student, parent, and educational needs, an alignment not commonly found among district-run schools. Since there are no barriers to enrollment and funding is not capped at a preset amount, FLVS can increase its revenue by enrolling additional students and ensuring that those students successfully complete courses.

"Part of what Florida did is set it up in a way that gave direct access to parents and students, but structurally left kids enrolled in their district. [This has enabled] Florida to reach scale," explains Barbara Dreyer, president and CEO of Connections Academy, a for-profit, full-time virtual school provider and partner of FLVS. "Many other states are caught in a catch-22: [Their programs] do not have enough scale so they are not cheap, but because they are not cheap they can't get to scale."

New Challenges

Despite FLVS's success and national recognition—in December 2008 Florida governor Charlie Crist accepted a plaque from the Center for Digital Education recognizing Florida as the top provider of virtual education in the nation—the school still faces a number of operational and political challenges. The school is experiencing staggering growth; in the eight months from July 2008 to February 2009, it hired more than 300 new full-time teachers (see Figure 2). After a long period of extremely solid support in Tallahassee, the state's executive and legislative leaders have begun to turn over.

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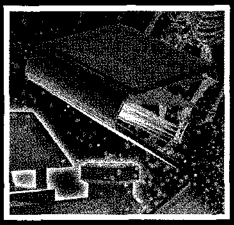

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from a variety of additional virtual school vendors, researchers, and district officials. While every legislator and speaker at the hearing expressed strong admiration and support for FLVS's programs, it was clear that FLVS was no longer driving the agenda.

In 2008, spurred by a stated desire to increase school choice, but also partly motivated by fiscal concerns and vendor lobbying, the legislature voted to change the state's other virtual school provisions that regulated full-time programs. In addition to FLVS's supplemental programs, the state had contracted with two private providers, the similarly named Florida Virtual Academy, run by K12, Inc., and Florida Connections Academy, to offer fully online, full-time, statewide virtual school programs for elementary- and middle-school students. The new law phased out the statewide programs, mandating that beginning in the 2009–10 school year, each Florida school district must develop its own offering or contract with a provider to offer a K–8 full-time online school option.

FLVS had to scramble quickly to respond. While the legislation did not directly impact FLVS's supplemental programs or funding, it presented another, possibly more dangerous, issue. With 67 districts mandated to begin their own online programs and funding incentives for these districts to contract with low-cost providers and pocket the difference, FLVS feared that virtual education would be tainted by low-quality programs. Over the past five years, the school had watched as a number of other states, such as Colorado and Pennsylvania, conducted audits and investigations to root out mismanaged programs, casting doubt on quality programs in the process.

FLVS did not serve elementary-school students and operated on a supplementary basis. But the school already had "franchise" relationships with eight Florida counties, including Broward (Fort Lauderdale), Dade (Miami), and Hillsborough (Tampa). Under this agreement, the counties' district schools use their own teachers in conjunction with FLVS's courses and technology platform to offer online courses. For instance, in Broward County, the district offers a full-time alternative high-school program. These districts were mandated to begin K–8 full-time programs, but FLVS could only offer courses in 6th through 12th grade.

Faced with the possibility of being a nonplayer and not necessarily in a position to start its own program, FLVS decided to partner. The school issued an open solicitation for proposals and developed a partnership with private Connections Academy to jointly solicit and run K–8 programs for Florida school districts. Dreyer, when asked about the partnership, notes FLVS's strong national reputation and the credibility it brings to her company.

Christopher McGuire, new principal at Broward Virtual School, an FLVS franchisee, continues the school's philosophy of operating both within and outside of the system: "This is a healthy alternative to the conventional school model...we're competing on a different plane: 'Come to Broward Virtual School if the traditional model is not working for you.'"

A Winning Strategy

More than a decade after the school's founding, Brogan recognizes the narrow path that FLVS has navigated between accommodation and confrontation. "Education has a unique ability to fend off and co-opt reform, drag it into a cul-de-sac and strangle it." At the other extreme, "reformers can become such zealots. What is a great idea is lost in the translation of zealot status, lost in a wash of defensiveness."

Bush, Brogan, and Gledich are all quick to point out that despite the school's political support, it would not have succeeded without consistent leadership and a high-quality program. Former governor Bush says that a "poor quality product would have failed." While much more research is needed to understand the effectiveness of virtual schooling for students in K–12, the small body of research available points to no significant differences in student performance in online courses versus face-to-face learning. At FLVS, the early evidence, including scores from its students' AP exams, is positive (see Figure 3).

While it is still too early to determine the ultimate effect of FLVS on public schooling in Florida, the program's growth is evidence that its political strategy has succeeded. Quietly, without the polarizing rhetoric or bruising battles of other reform efforts, the school has expanded options for students. For a virtual school, that's a concrete achievement.

Bill Tucker is managing director at Education Sector.

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as Destiny?

Hispanic student success in Florida

By MATTHEW LADNER and DAN LIPS

A major debate among education reformers over how best to reduce the achievement gap broke out during the 2008 presidential campaign. Most advocates on both sides backed Barack Obama, but they urged him to pursue different policies. The Education Equality Project (EEP) supported a continuation of accountability and other school-focused reforms. The coalition for A Broader, Bolder Approach to Education claimed that the greatest gains could be achieved by addressing health, housing, and other social ills (see "Straddling the Democratic Divide," *features*, Spring 2009).

A close look at recent changes in education in the state of Florida sheds light on that debate. One finds in this southern state, a closing of the achievement gap that has eluded allegedly more progressive states. When it comes to education progress, Florida is a star performer. Moreover, its success has come in spite of a challenging student demographic profile and relatively modest resources.

Let us begin with a basic demographic fact often cited by those in the Broader, Bolder camp. Over the past 20 years, the schools of Florida, California, Texas, and New Mexico have all seen rapid growth in their Hispanic populations. Compared to other groups, Hispanic students underperform academically, drop out of school in higher numbers, and attend college in lower numbers. A straight projection of the recent past into the future looks bleak for these students and their educational outcomes.

But demography need not be destiny. Over the past decade, Florida has succeeded in improving student achievement despite its demographic profile. Low-income students (those eligible for free or reduced-price lunch) make up almost half of Florida's K–12 student body. Florida has a "majority minority" mix of students, with non-Hispanic white students making up 48.3 percent of the total, African Americans about 24 percent, and Hispanics 25 percent. But the educational situation is not as bleak as those statistics might imply: both minority groups have recently made academic strides forward.

Florida has managed to realize such gains although the state's per-student funding is below the national average. More than making up for its fiscal limitations, the state, led by former governor Jeb Bush, implemented a series of school reforms that together appear to have had dramatic consequences for student performance. Upon taking office in 1999, the governor pursued a multipronged strategy of education reform: an emphasis on reading, standards and accountability for public schools, and new choice options for students. The bulk of the reforms passed in his first year in office. Subsequently, those initial measures were buttressed by additional innovations, including the curtailing of social promotion for students who failed to learn to read in the early elementary grades.

Academic Achievement

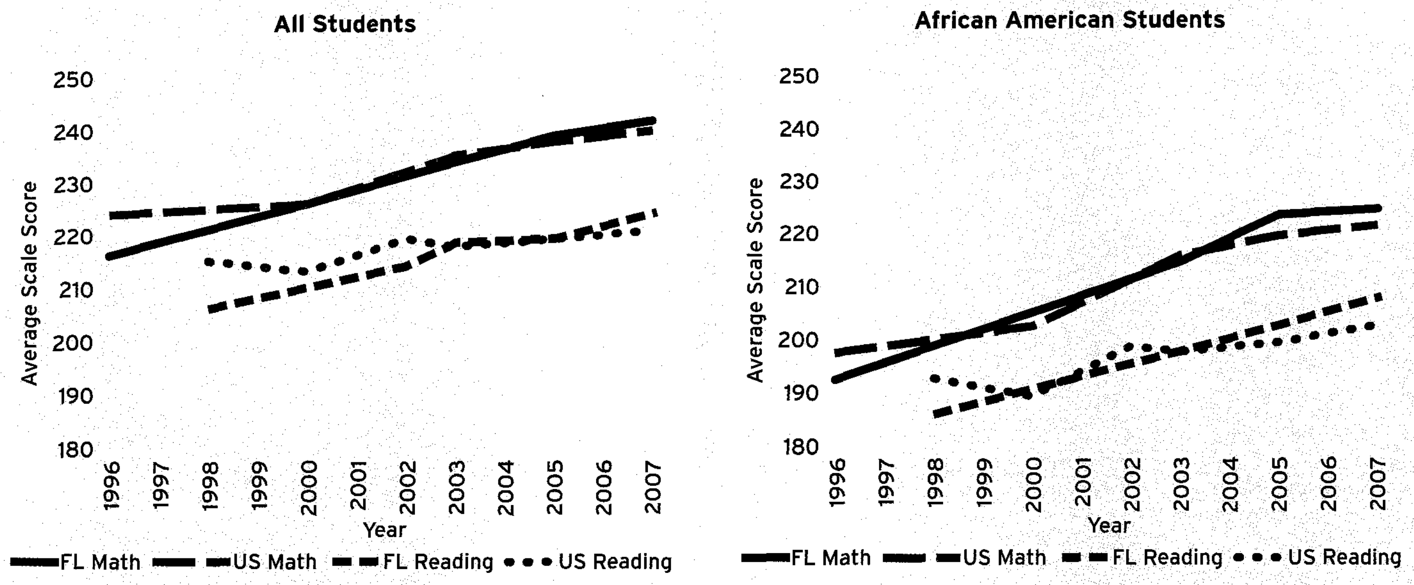
Prior to the introduction of those innovations, Florida's educational record was little short of abysmal. Among the 43 states that in 1998 were gathering information on their students' performance on the National Assessment of Educational Progress (NAEP), Florida had the fifth-lowest 4th-grade reading scores. But over the next decade those scores moved sharply upward so that by 2007, Florida's scores were tied for 8th highest among all the states. As the state moved up the leader board, Florida students, on average, were making strikingly larger gains on NAEP exams than the average student nationwide (see Figures 1 and 2). Nor were gains occurring only in reading. Fourth-grade math scores were climbing at an even faster rate. In 8th grade, reading and math gains in Florida were less impressive but they still outpaced the nation.

Those statewide trends could have been masking a widening of the achievement gap between whites and minorities. But exactly the opposite was happening. Far from lagging behind, Florida's minority students were doing much to drive the overall rise in test-score performance. In the decade after the education reforms began, the average NAEP reading score for Hispanic 4th graders in Florida rose steeply so that by 2007 scores were higher than the average NAEP reading scores of all students (regardless of ethnicity) in 15 states (see Figure 3).

One might think that rising scores among Hispanic students reflect their families' movement up the income ladder into the middle class. But even Florida's low-income Hispanic students scored, on average, equal to or higher than nine statewide averages for all students (regardless of income). Average scores of all Florida low-income students, regardless of ethnicity, tied or exceeded the statewide

Student Leaders (Figure 1)

Since the Florida reforms began, the state's 4th graders have made greater gains on the National Assessment of Educational Progress (NAEP) also made larger gains than their counterparts nationwide.



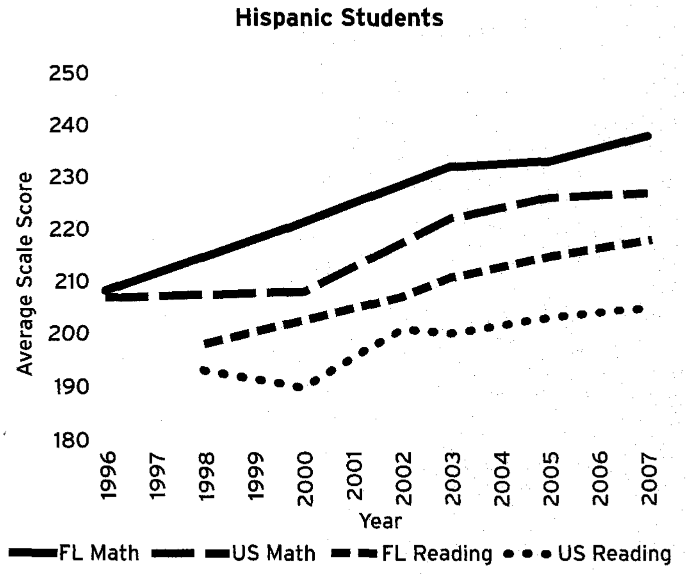
SOURCE: National Assessment of Educational Progress

Comparison of trends in Florida with those in California is particularly intriguing. California has largely eschewed the kinds of accountability and choice reforms that Florida adopted.

average for all students in seven states. Many of these differences are small and thus within the margin of NAEP sampling error, so should be thought of statistically as ties. The margin of error cuts both ways, however, as the 2007 statewide averages for all students in Georgia, Illinois, Michigan, North Carolina, Rhode Island, and Texas all fell within two points of Florida's average for Hispanics on the 4th-grade reading exam. Indeed, the national average for all students falls within this same narrow margin.

Comparison of trends in Florida with those in California is particularly intriguing. Both are large states with growing Hispanic populations. California's median family income is 12 percent higher than Florida's, meaning families have more resources to devote to their children's education. But California has largely eschewed the kinds of accountability and choice reforms that Florida adopted.

reading and math tests than U.S. students overall. Minority students


Hispanic Students

The consequences for students range between noteworthy and startling, as shown in Figure 4. The chart displays the differences in the NAEP gains 4th- and 8th-grade students made in the two states. As they did in 4th-grade reading, Florida's Hispanic students outperformed California students in 4th-grade math and 8th-grade reading; they tied the California average in 8th-grade mathematics.

Explaining Florida's Success

Not everyone thinks that something remarkable has been happening in Florida. The state's success is only an apparent one, says Boston College education professor Walter Haney. He discounts Florida's progress on 4th-grade NAEP scores, on the grounds that Florida's worst-performing readers repeat 3rd grade and thus are not included in the 4th-grade NAEP. Without the low-performing 4th graders who have been held back for a year, the average scores of the remainder jump upward.

Haney's critique is worth considering. One of the pillars of the Florida accountability reforms has been the policy, introduced in 2003, of not promoting 3rd graders unless they perform at a minimally acceptable level on the reading portion of the Florida Comprehensive Assessment Test (FCAT).

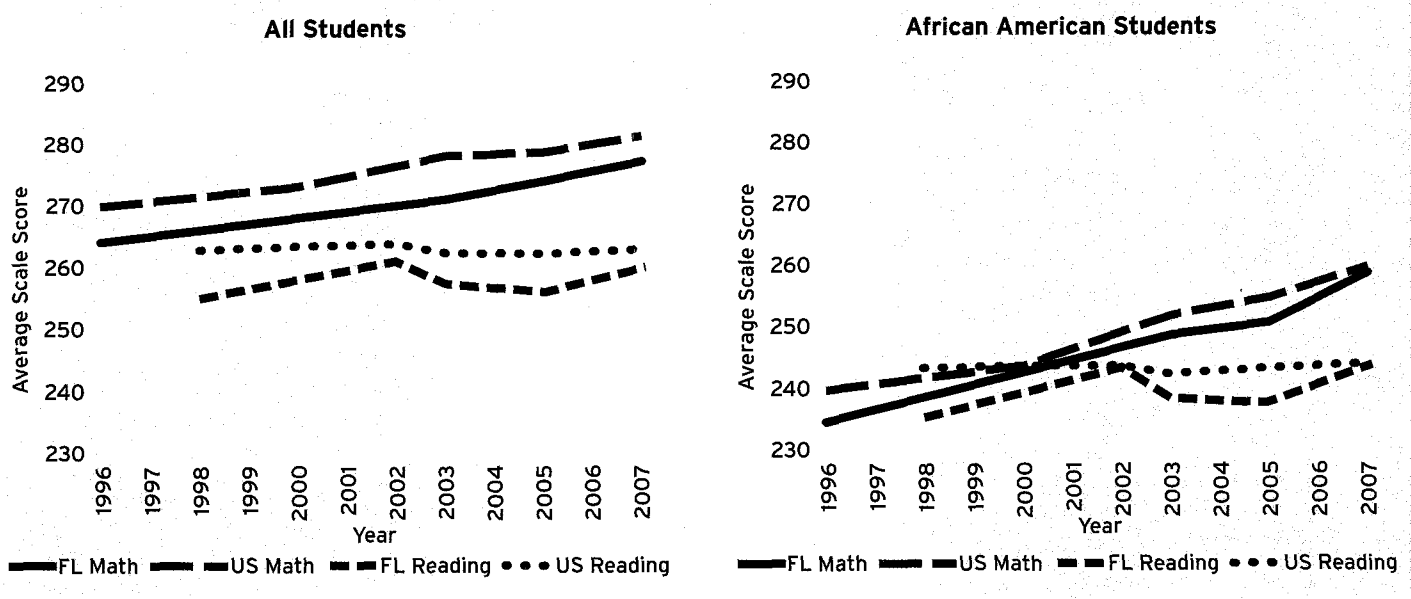
But a more careful look at the data shows that Florida's NAEP scores were rising before implementation of the retention policy. Between 1992 and 1998, Florida's average NAEP score in 4th-grade reading dropped by two points. Between 1998 and 2002 (before the social promotion policy affected 4th grade), however, it increased by eight points. One of the reasons for lower retention rates was improved 3rd-grade performance on the state's examination. In 2002, 27 percent of 3rd graders scored at the lowest level on the reading portion of FCAT, but by 2008 only 16 percent did so, a 40 percent reduction in the pool of students eligible for retention. This helps explain why actual retention rates declined by 40 percent between 2002 and 2007.

One would expect, if Haney's interpretation is correct, to see an upward spike in 4th-grade test scores in 2003 followed by a steady decline in test performance in subsequent years. But in fact the trend line shows no such spike and decline, only a steady movement upward.

Perhaps Florida's gains are only apparent for another reason: its low starting point in 1998. Is it possible that gains

Steady Progress (Figure 2)

Florida's 8th graders have begun to close the gap vis-à-vis their peers nationwide on the National Assessment of Educational Progress (NAEP) gap while Hispanics moved even further ahead of their peers in other states.



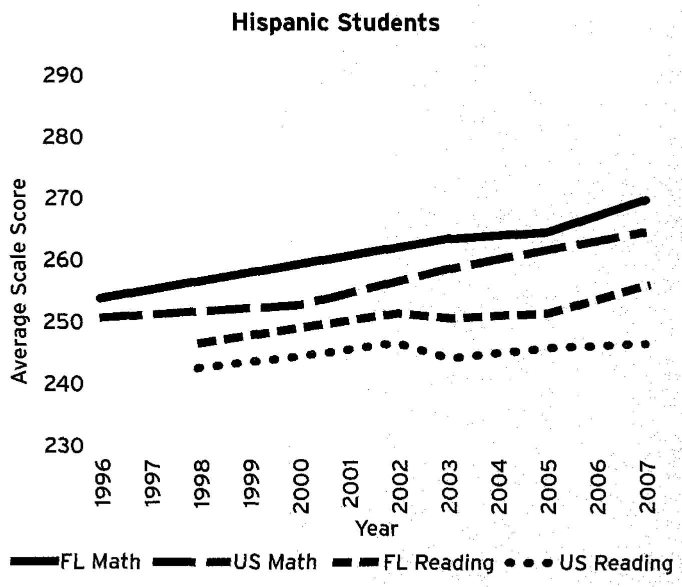
SOURCE: National Assessment of Educational Progress

are realized most easily when scores are initially very low? On this question, opinion is quite divided. Some think gains are more easily realized if students are already accomplished, while others think those with high scores have neared a ceiling, making it difficult to raise their scores further. However that issue is settled in principle, it cannot account for the fact that Florida made striking gains while states with equally low scores did not. For example, on the 1998 4th-grade reading test Florida was near the bottom, with Arizona, California, Hawaii, Mississippi, Louisiana, and New Mexico. In 2007, all those states but Florida were still clustered near the bottom.

But if the Florida achievement gains are genuine, and not imaginary, they might still be attributed to factors over which schools have little or no control, for example, demographic changes in the state. Such is the claim of those who say that demography is destiny. Were demographic change the best explanation, however, student performance in Florida would be worse than ever. According to the National Center for Education Statistics (NCES), 45 percent of Florida children attending public schools in 1998 were of minority background. By 2005, that percentage had climbed to just over 50 percent. Similarly, the percentage from low-income backgrounds (eligible for free or reduced-price lunch) rose from 43 to 45 percent between 1998 and 2007.

Another plausible explanation for the Florida success story is the 2002 passage of an amendment to the state's constitution mandating universal preschool education for all those who would like to participate. But however valuable the program may prove to be, it cannot explain the gains in achievement observed thus far. The amendment did not require implementation until 2005, and none of the students participating in the Florida early childhood program had reached the 4th grade by 2007, the most recent year for which NAEP data are available.

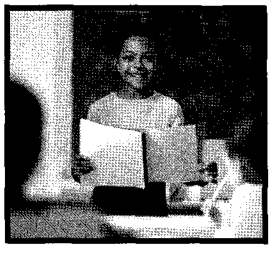
Much the same can be said for a second constitutional amendment—the class-size reduction amendment—approved by Florida voters in 2002. As in the case of preschool, there is some research evidence that suggests class-size reduction can yield significant gains in student achievement in the early grades. Florida state law now mandates no more than 18 students per classroom in grades K through 3, and no more than 22 students in grades 4 through 8. But the constitutional amendment is being implemented slowly. Through the 2008–09 school year, administrators have been considered in compliance if their schoolwide average class sizes were under the constitutional limits. According to the state department of education, from 2002 to 2008, average class sizes in the early grades were reduced from roughly 23 to 16 students in pre-K to grade 3 and from 24 to 18 students in grades 4 to 8. Still, if class-size reductions *reading and math tests. African American students have closed the*



had any effect on achievement gains between 1998 and 2007, it could only have been toward the end of the period.

Nor can the gains in education be easily attributed to changes in public school funding. Florida's average spending per pupil rose from $7,183 in 1998–99 to $7,683 in 2004–05, in constant dollars. This was less than half the increase in the national average over the same period.

One can pretty much rule out these possible explanations for the Florida success story. The gains are not an artifact of the elimination of social promotion in 3rd grade or of the ease with which low test scores can be lifted. Nor can they be attributed to demographic change, the introduction of preschool education or class-size reduction, or greater per pupil expenditure. One must look elsewhere for an explanation. The most likely remaining candidate is school-focused reforms, which have the vigorous support of the EEP side of the education reform debate.



Florida has introduced a comprehensive program of school reform that has five main points: school accountability, literacy enhancement, student accountability, teacher quality, and school choice.

The Florida Reforms

Over the past decade, Florida has introduced a comprehensive program of school reform that has five main points: school accountability, literacy enhancement, student accountability, teacher quality, and school choice. Together, the reforms created a system that appears to have focused teachers and students on the task of learning in a way that has yielded the dividends we have highlighted above.

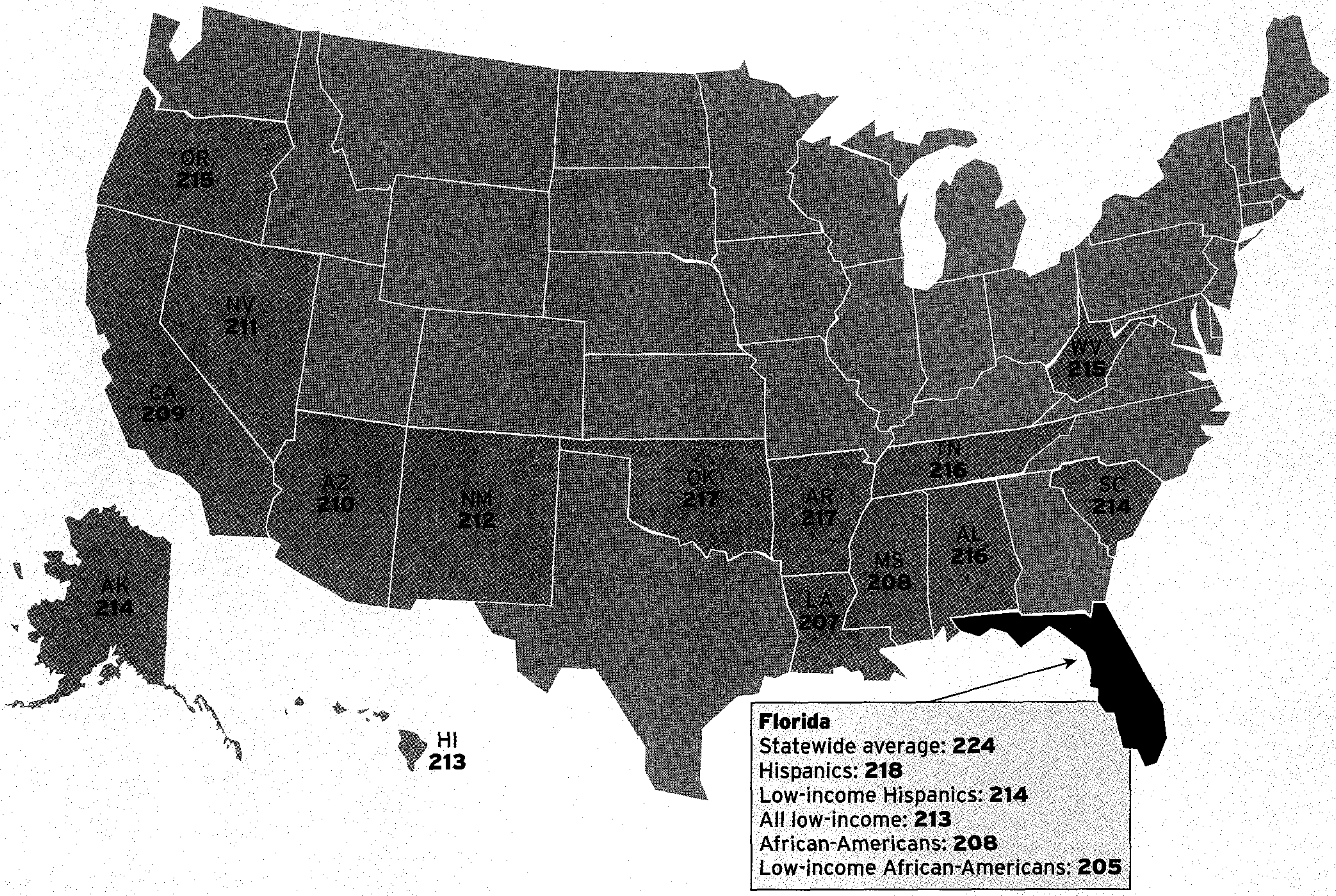
School Accountability. In 1999, the state legislature enacted a law that required students in grades 3 through 10 to take annual tests in reading and mathematics, known as the Florida Comprehensive Assessment Test or FCAT. The assessment had two distinctive features lacking in most other accountability systems, including the one prescribed by the federal law, No Child Left Behind (NCLB). First, it gave each school in the state a very clear grade of A to F based on the results from the test *and* offered a specific fiscal incentive to schools to try to reach as high a grade as possible. Bonuses were given for obtaining an A or raising one's grade from one year to the next. Conversely, schools receiving an F grade twice over a four-year period were asked to carry out a variety of reforms. The law offered students at "double F" schools the opportunity to attend private schools until a court decision disallowed the practice in 2006.

Beginning in 2002, the accountability system included measures of student progress from one year to the next, a feature not incorporated into NCLB. That gave schools with low-performing students an opportunity to raise their grades without imposing upon them the extremely difficult task of matching the performances of schools whose student body enjoyed a preferred demographic portfolio. Clear, realistic incentives to improve were made available to schools across the state.

Focus on Literacy. Along with its accountability system, Florida in 2002 introduced a statewide program known as "Just Read, Florida!" The effort created new academies to train

Success Story (Figure 3)

On the 2007 NAEP test in reading, Florida's Hispanic 4th graders scored somewhat lower than Florida's statewide average but higher than the average for all students in 15 other states.


OR 215
NV 211
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OK 217
AR 217
TN 216
WV 215
SC 214
AL 216
MS 208
LA 207
AK 214
HI 213
Florida
Statewide average: 224
Hispanics: 218
Low-income Hispanics: 214
All low-income: 213
African-Americans: 208
Low-income African-Americans: 205

SOURCE: Heritage Foundation

teachers in reading instruction and provided for the hiring of 2,000 additional reading coaches. Teachers in grades K–3 took mandatory reading training courses over a three-year period. Students in grades 6 through 12 who demonstrated insufficient reading skills were provided remedial instruction.

Student Accountability. Beginning in 2003, Florida students were asked to pass a more demanding examination if they were to be given a high school diploma. In addition, Florida lawmakers, as discussed above, curtailed the social promotion of 3rd-grade students who performed at very low levels in reading. According to a careful evaluation by Jay Greene and Marcus Winters at the University of Arkansas (see "Getting Ahead by Staying Behind," *research*, Spring 2006), the program had a positive impact on the performance of all 3rd graders, including those who were retained in that grade. Apparently, they benefited more from an additional year of instruction than they would have had they been pushed on to 4th grade when they were not well prepared for the more challenging material.

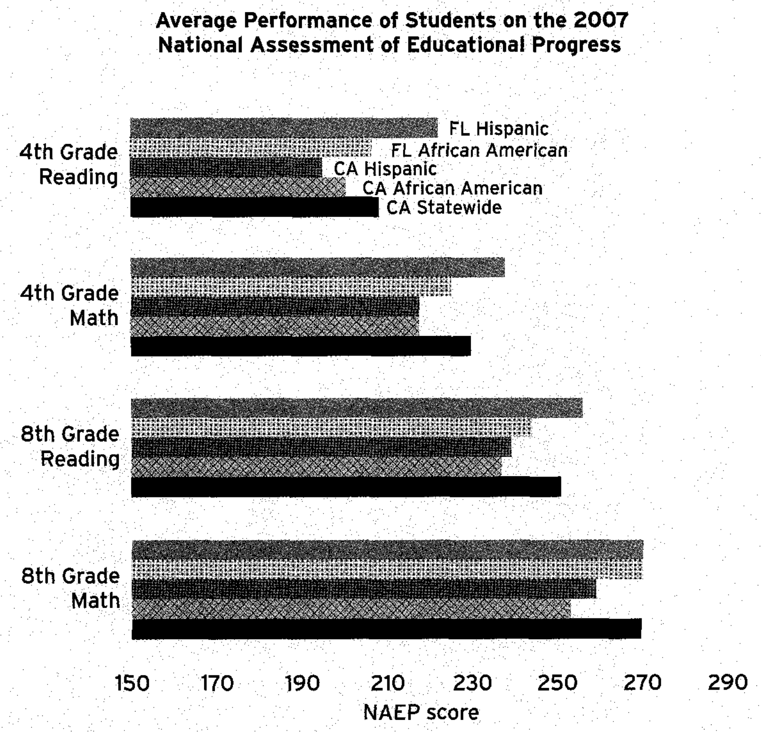
Teacher Recruitment. Florida enacted new policies for broadening the pool from which teachers were being selected. Previously, teachers were required to earn a certificate by attending one of the state's schools of education. Florida supplemented that channel of recruitment with a variety of alternative paths. The state opened "Educator Preparation Institutes" to facilitate the transition into teaching. Districts were allowed to offer alternative certification. Today, more than one-third of all new teachers in Florida are coming to the profession through alternative certification programs. The state's teaching workforce has become the nation's third most ethnically representative (see "What Happens When States Have

Genuine Alternative Certification?" *check the facts*, Winter 2009).

The alternative certification program may have had a particularly significant impact on Hispanic students. Florida enjoys a large immigrant population that fled from Cuba in the years following the establishment of Castro's communist regime. Many of the immigrants were middle-class professionals and entrepreneurs, and they have established a strong economic, political, and cultural presence in southern Florida. That population provides a pool of potential educators of high talent who speak both English and Spanish. Just how important alternative certification was to the recruitment of highly qualified bilingual instructors is unknown, but it cannot be ruled out as a potential explanation for the particularly large gains Florida's Hispanic students have made. On the other hand, it cannot be the whole story, as African American and non-Hispanic white students also made strong gains during this period. Moreover, the percentage of Hispanics of Cuban origin has declined during the past decade (though this may not have affected the size of the pool of qualified bilingual teachers).

South Beats West (Figure 4)

In most cases, Florida Hispanics outperform California students, whatever their ethnicity.



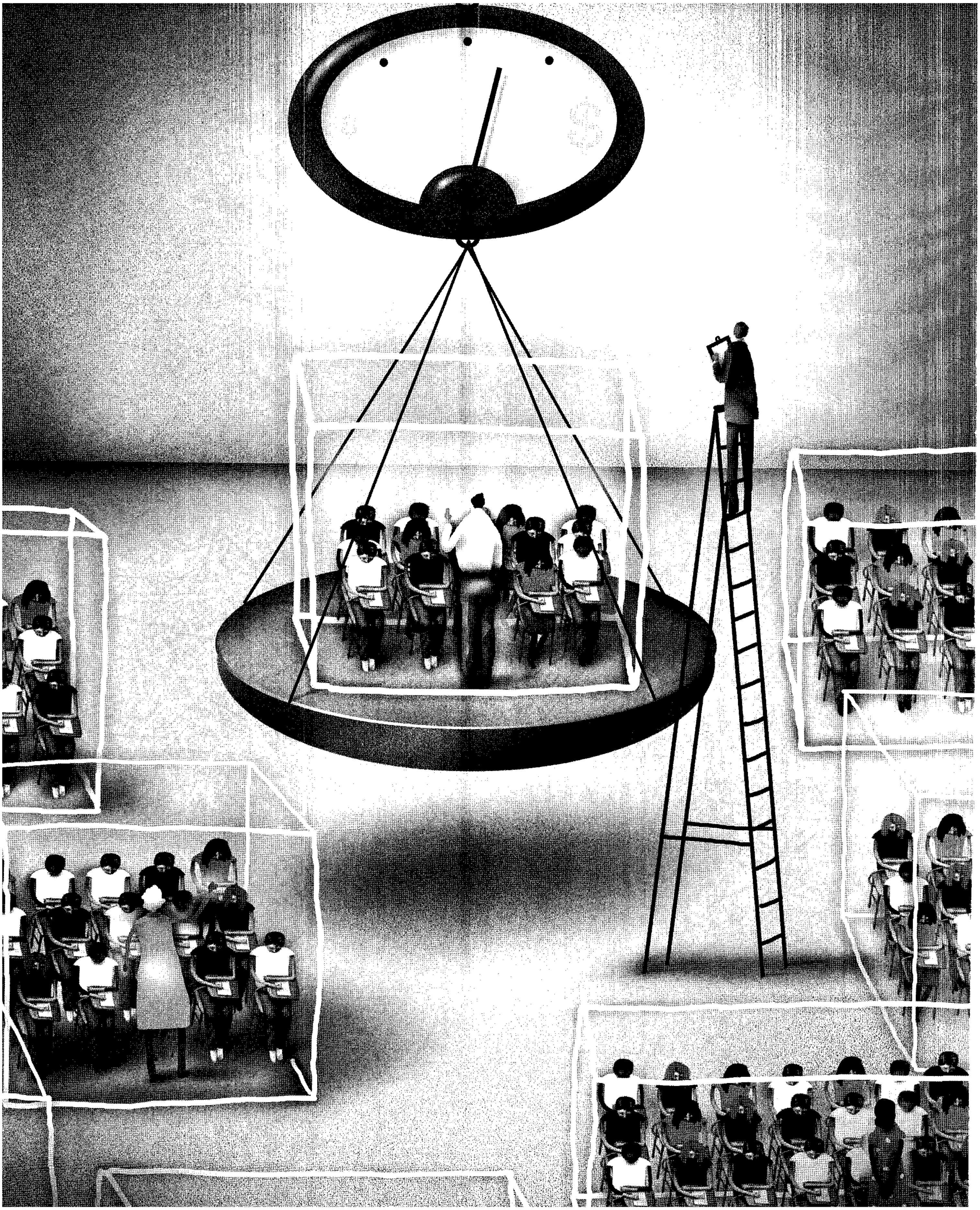
SOURCE: National Assessment of Educational Progress

School Choice. Florida is well known for the range of school choice legislation it has enacted over the past decade. Charter schools, vouchers, tax credits, and online education all provide students and families with greater choice in 2008 than they had in 1998. For example, 105,329 students were enrolled in the state's 358 public charter schools in 2007–08. That same year 19,852 students eligible for special education took advantage of the opportunity to use a voucher to attend private schools, and 21,493 students received scholarships averaging $3,750 from a tax credit program that opened private schooling to students from low-income families. The state-funded Florida Virtual School currently offers students more than 90 online courses (ranging from GED to Advanced Placement courses). Middle and high school students anywhere in Florida can access these classes free of charge. The state projects that 168,000 courses will be taken and completed during the 2008–09 school year (see "Florida's Online Option," *features*, page 12). Multiple evaluations, by organizations ranging from the Manhattan Institute to the Urban League, have found the choice programs to have had a positive impact on Florida public schools.

Despite the numbers, the school choice programs are not large enough to have had more than a limited statewide impact on the millions of students attending Florida's public schools. Yet they helped create a climate in which public schools may have wanted to demonstrate their effectiveness for fear that choice opportunities would continue to expand.

Identifying what has caused the rise in Florida student performance cannot be done with perfect certainty. It might have been the accountability system, or the state's reading program, or its decision to expect more from students, or its alternative certification program, or its plethora of school choice innovations, or some combination of all of them. But the results from Florida do suggest that concerted efforts to improve the quality of an education system can pay dividends for students. It is probably not a coincidence that the one state that has outdone the others in its efforts to reform its schools has made outsize gains in student performance. Exactly which of the many reforms Florida undertook was the key to success may never be known, but the reform package offers other states—and the nation as a whole—a clear path on which they, too, can move forward.

Matthew Ladner is vice president for policy at the Goldwater Institute. Dan Lips is senior policy analyst at the Heritage Foundation.



BREAKING DOWN School BUDGETS

How much does it cost to provide a high school math course? What about remedial English? An Advanced Placement (AP) course in history? As the economic outlook continues to darken, school districts will be looking for ways to cut costs, and they will no doubt wrestle with some difficult issues. When does it make sense to keep classes small? When does it make sense to increase class sizes to cut costs? Such debates are often carried out in the absence of information about what actually happens in schools or what the options might be for reallocating scarce resources.

School districts produce reams of financial data to check off the right boxes on accounting and compliance reports required by states and the federal government. Typically missing is any financial analysis that follows the money into the school building to the classroom. Yet the classroom is where the mission-critical work happens and where the conversion of resources into services affects student performance. Educators need indicators that tell them whether the basic design and operation of their high schools direct resources in ways that sustain and enhance the district's academic strategies and priorities. Academic outcomes are one such indicator. A measure of spending that enables comparison across service areas is another.

Following the dollars into the classroom

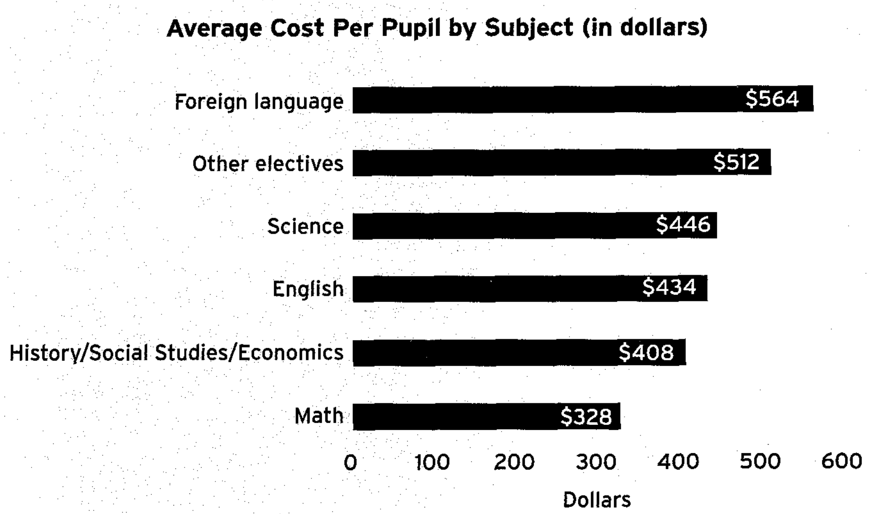
Computing spending patterns is not difficult. Per-pupil service expenditures can easily be determined at the classroom level. This analysis computes and reports spending on various services for high schools in three anonymous districts. The findings reveal the ways in which per-pupil spending varies by subject and course level.

By MARGUERITE ROZA

ILLUSTRATION / DAVID CUTLER

Cost by Subject (Figure 1)

In one small western district, math courses per student cost only 75 percent as much as English courses and about 60 percent as much as courses in foreign languages.



SOURCE: Author data from District 1

While the findings are not intended to be suggestive of all districts in the country, the work does demonstrate how such fiscal metrics can reveal the financial implications of the inner workings of individual high schools. How much does a high school pay to offer electives, and how does that compare to what is spent on core subject courses? What are the cost implications of decisions regarding the structure of the school schedule, which courses to offer, and who teaches what course?

The findings presented in this article demonstrate how isolating spending on discrete services can 1) identify the relationships between priorities, current spending, and outcomes; 2) clarify both relative spending on discrete services and the organizational practices that influence how resources are deployed; and 3) establish the current cost of providing high school services as a necessary precursor to identifying whether there are better ways to provide some services.

Spending on Services

The spending-on-services approach to cost analysis aims to inform strategic resource decisionmaking by zeroing in on what is provided. This approach breaks out per-pupil expenditures by the discrete services students receive. This service-costing method is most appropriately categorized as a management tool, to be used on a periodic basis, rather than a new accounting system requiring continuous and extensive record keeping.

Service costing is not a wholly unexplored idea. In 1996, analyst David Monk and associates determined per-pupil expenditures for various courses in six high schools in four New York districts. They calculated per-course spending using actual teacher and aide salaries, course schedules, and course enrollments. These calculations indicated that the highest per-pupil course expenditures were associated with foreign language, music, and science instruction (excluding special education costs).

In 1999, Jay Chambers of the American Institutes for Research merged unique state-level databases containing information on teacher salaries, teacher course assignments, and course enrollment data to calculate per-pupil expenditures by course for students in Ohio. The results indicated wide variation in spending by course, with some elective courses—including Latin, AP Spanish, and drafting—costing twice as much on a per-pupil basis as algebra, literature, and composition.

In 2007 and 2008, the research summarized in this article added to this body of work by determining expenditures associated with a variety of services in high schools in three districts: District 1 is a small western district with one comprehensive high school; District 2 is a midsize eastern district with 10 comprehensive high schools; and District 3 is a midsize western district with six high schools, each divided into small learning communities.

The districts provided information on teacher salaries and stipends, teacher assignments and teaching loads, course offerings and schedules, teacher aide salaries and placements, and student participation in various courses. Each teacher's actual salary (including stipends, where relevant) was then divided proportionately among the courses taught and the number of participating students. The approach yielded a per-pupil expenditure based on the proportionate teacher and aide compensation. This per-pupil figure does not fully recognize all inherent expenditures (for instance, the costs of school leadership, school facilities, and district-provided shared services). It does, however, provide a means of making comparisons in spending across courses, as the excluded costs don't vary. The expenditure data were aggregated to allow for comparisons across subjects (e.g., math vs. foreign language), types of courses (e.g., core courses vs. electives or foreign language), course levels (remedial vs. honors), and grade levels (9th vs. 12th).

The following sections provide examples of spending-on-service findings from the three districts studied.

Results

Figure 1 shows the range of per-pupil costs in District 1: electives came at a cost of $512 per pupil versus $328 per math class, $434 per English class, and $564 per class in a foreign language.

District 2 also spent less per pupil on average for core courses (math, science, English/literature, and social studies/history/economics) than for noncore courses, which include electives and foreign language. District 3, however, directed a larger share of its dollars into core courses, so on average 19 percent more was spent per pupil on core courses than on noncore courses. Thus, the spending patterns varied among the three districts studied, indicating that one cannot assume that patterns found in one locale apply everywhere.

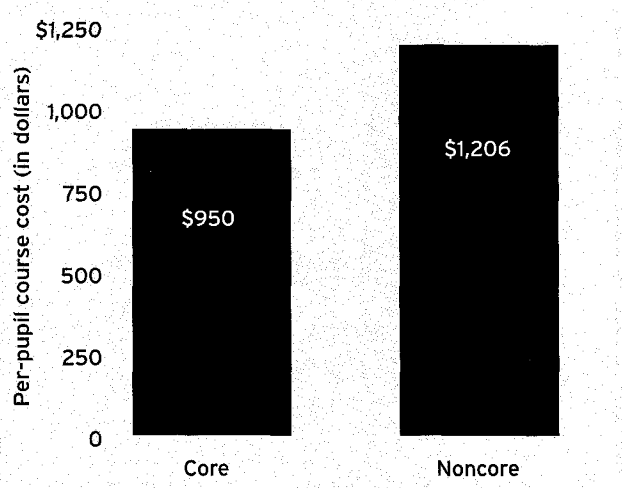
What drives these cost differences? As the reader would expect, teacher salary and class size are key variables, since these expenditure figures are computed primarily by dividing each teacher's salary across that teacher's course obligations and then dividing the per-course values by the number of pupils enrolled. A comparison of these variables in District 2 indicates that both lower class sizes and higher salaries in the noncore courses contributed to the differences in per-pupil course spending (see Figure 2). Teachers in some subjects taught fewer classes, which also had implications for the spending differences.

Here again, the pattern varied a bit among the districts, but in all three, the average salary of teachers who teach electives was meaningfully higher than that of core course teachers. In District 3, where per-pupil spending per noncore course was lower than for core courses, it was because the noncore courses had larger class sizes, not because the core teachers received higher salaries. Art and photography courses, for instance, were filled with many more students than English and math classes.

The average salary of teachers who teach electives was meaningfully higher than that of core course teachers.

Cost Factors (Figure 2)

Teacher salary differences were more important than differences in class size in explaining the higher per-pupil costs of instruction in noncore courses in one midsize eastern district.



Core
Average salary = $63,633
Median salary = $54,435
Class size = 19

Noncore
Average salary = $68,558
Median salary = $77,800
Class size = 18

SOURCE: Author data from District 2

Comparing across Levels

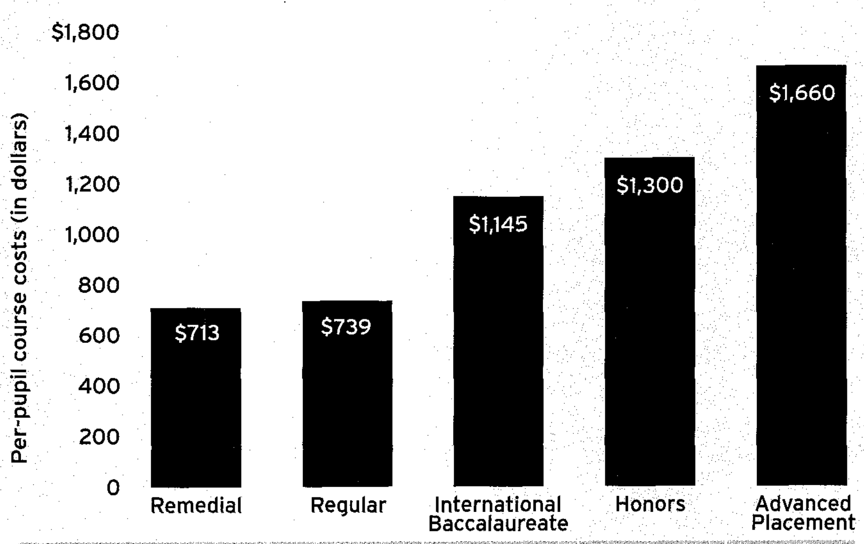
The high schools studied spent more per pupil on higher-level courses than on mid-level or low-level courses. For example, in District 2, average spending across high schools on AP courses was $1,660 per pupil per course, while spending on regular courses averaged $739 per pupil and spending on remedial courses averaged $713 per pupil (see Figure 3). Advanced Placement teachers earned more than teachers of remedial courses ($16,656 more) and taught smaller classes on average (14 students vs. 19 students). While it wasn't district policy to place more senior, higher-paid teachers in AP posts, district officials acknowledged that more senior teachers were given their choice of courses and most often opted to teach at the AP level. Differences in class size were in part a function of a state-imposed limit on AP class size.

In District 3, spending on regular and honors courses was on par, while the cost per student was 28 percent higher for the International Baccalaureate courses. In District 1, per-pupil spending on honors and AP classes exceeded spending on regular classes by 80 percent in math and 23 percent in English (the two subjects where courses were broken out by level).

We can also use these results to estimate what is being spent on a set of core courses (say, junior level math and English, U.S. history, Spanish III, and chemistry) for different segments of the student population. For a junior taking these five courses at the honors level in District 2, for example, expenditure would total $6,910. For a junior taking these same five courses at the regular level, the expenditure would total $2,767.

Cost by Course Level (Figure 3)

The midsize eastern district spends substantially more per pupil on advanced courses than on regular and remedial courses.



	Remedial	Regular	International Baccalaureate	Honors	Advanced Placement
Class size	19	22	17	14	14
Salary	$56,597	$61,940	$67,396	$70,283	$73,253

SOURCE: Author data from District 2

Implications for Public Education

The policy landscape includes many school and district leaders engaged in high school redesign. While redesign has generally been considered a strategy to improve outcomes for students, with budget tightening ahead redesign may also be a strategy for enabling schools to do more with less. Relevant questions include, What factors contribute to relatively high costs for some subject areas and course levels? In what areas are higher investments accompanied by strong (or weak) outcomes? How can district and school leaders use the information to manage their resources efficiently and effectively?

To take the next step, school leaders need to look at outcomes. Where expenditures on a high-priority service are relatively low and there is dissatisfaction with the outcomes, then the question is, What changes are needed to improve outcomes? The cost-of-services model can also uncover relatively high spending in an area of low priority. Making changes to reduce costs in one place frees up funds for redirection to a high-priority area.

For management, the exercise is to identify the key cost drivers, recognize how various organizational features such as class sizes, teacher assignments, and the school schedule work to affect spending, and then make decisions deliberately about how best to use resources. In the schools studied here, staff compensation and class size were two obvious key cost drivers, but other factors played a role as well. What follows are selected cost factors that present opportunities to make trade-offs between services. In education, where investments have risen steadily for several decades, providing new services has often meant raising new funds. With current projections forecasting more constrained public funds in coming months, the resource landscape will likely be one of greater scarcity, which will only increase the likelihood that schools will have to consider such trade-offs.

With current projections forecasting more constrained public funds in coming months, schools will have to consider trade-offs.

Teacher salary schedules and assignments. Schools may have difficulty attracting or retaining effective teachers to positions that are deemed high priority, such as teaching remedial courses in core subjects. A relatively low per-pupil cost for those courses may be viewed as underinvestment. If so, education leaders might want to make available more funds for the salaries of teachers of remedial courses and, if necessary, look for other areas in which costs can be reduced. Calls for teacher salary differentials as a tool for recruiting teachers in hard-to-staff subjects indicate some interest in the idea.

In the three districts studied here, teachers taught a set number of courses. Reducing responsibilities for some teachers and increasing them for others is another way of reallocating resources.

Class size and course offerings. Recognizing how class size affects the per-pupil cost of delivering services can aid in strategic allocation of scarce resources. Faced with relatively high per-pupil costs for music classes and limited funds, District 3 chose to offer fewer (larger) music classes as a deliberate strategy to free funds for more (smaller) core courses. This decision to shift resources reflects a trade-off in which something is both gained and lost. Smaller classes in the core are made possible by accepting larger enrollments and fewer offerings in music. Some states or districts limit class sizes for AP or gifted courses, which increases the per-pupil cost for these courses. The trade-off is fewer resources for other courses.

School schedules. The daily school schedule affects the way resources are deployed across subjects. In the three districts studied, each course was allocated equal time on the daily and weekly schedule, resulting in an even allocation of each teacher's salary across the courses taught. If school leaders wish to increase investment in core classes, one option is to lengthen the class periods for those classes. Some schools provide double blocks (class periods that are twice as long as a regular class period but still meet every day or nearly every day) in math, science, and literacy. Increasing the time allocated to core courses requires a trade-off that may imply shorter or less-frequent classes for noncore courses (for example, a photography course may meet two or three days a week instead of five) or a reduction in the number of noncore courses students can take.

Fueling Innovation

Spending-on-services calculations can be used to establish current per-pupil costs as a precursor to seeking better ways to provide certain services to students. In a market economy, the cost of a service or product is determined by what sellers and buyers agree to. This occurs in higher education, resulting in a range of educational options at a variety of costs. But K–12 public education for the most part functions as a monopoly, and expenditures are far removed from recipients (or their parents) and often are not even known by their providers (schools and districts).

In *Out of the Box: Fundamental Change in School Funding*, David Monk discusses the idea of schools providing a limited base program but then allowing parents to pay for extra services not deemed part of the base (such as music). For such an idea to work, Monk acknowledges that schools would need to create a closer link between these extra services received and prices paid. Similarly, Frederick Hess and Bruno Manno call for "unbundling" services, whereby schools might contract out some of the services they provide as a way to open up demand and encourage new suppliers of school services. For instance, schools might contract with local providers to offer electives or sports and might pay a distance-learning provider to offer AP courses.

Spending-on-services analysis fits well with this angle on innovation in that it defines the costs of each service in a way not regularly considered in K–12 schooling. Defining investments in per-participant terms can help spur cost comparisons to services offered by alternative providers. For instance, before school leaders move to eliminate relatively high-cost art or music classes, they may look to see whether local providers (community centers, local colleges, etc.) can or already do provide similar services at better prices. Where schools pay a high per-pupil amount to offer some courses (for example, AP Spanish or remedial reading) to a small number of students, they may find lower-cost options exist via distance learning or contracted services. By freeing up resources in those areas, education leaders can direct more resources to other subjects and students.

Where schools pay a high per-pupil amount to offer some courses, they may find lower-cost options exist via distance learning or contracted services.

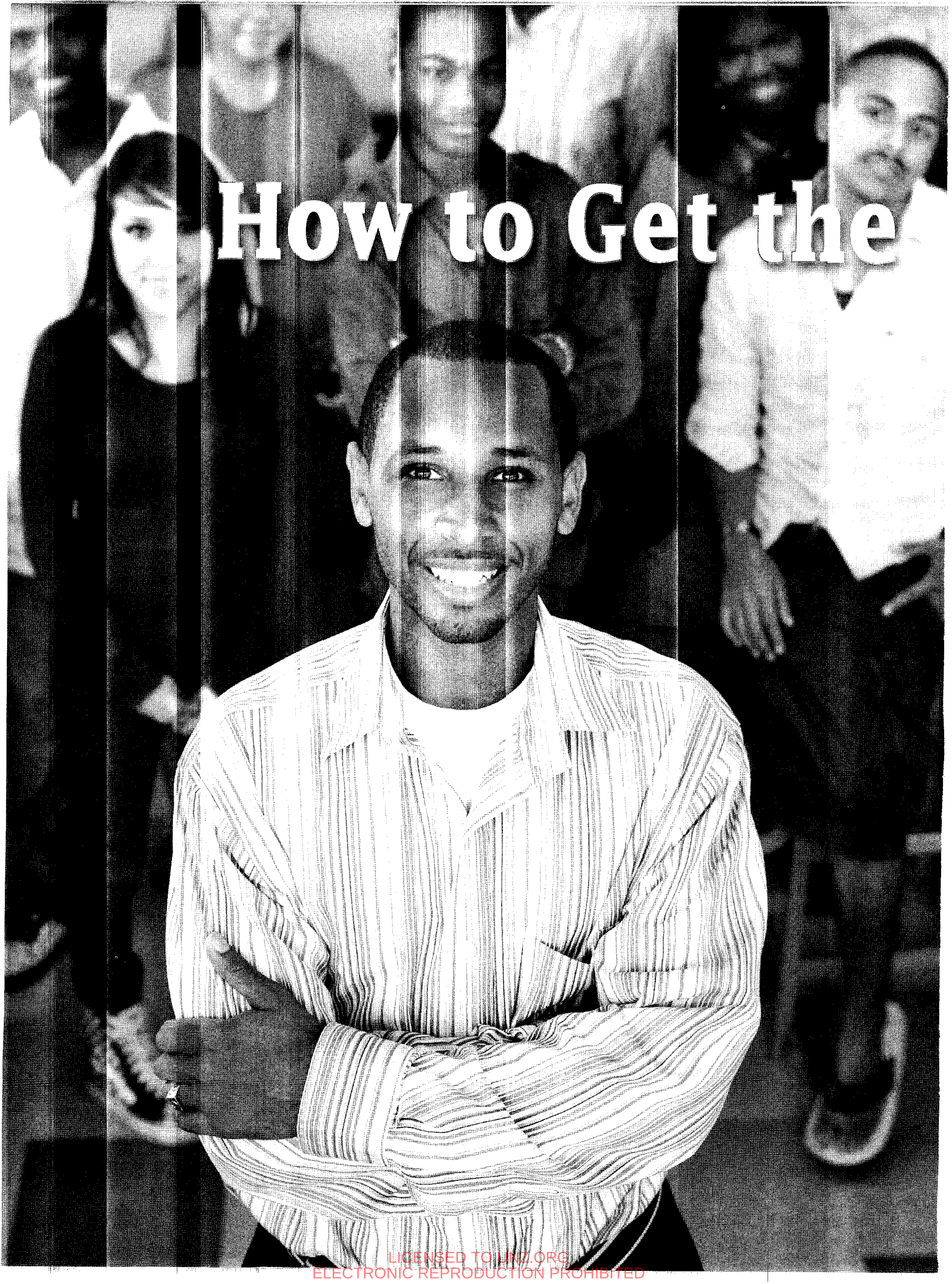
Conclusion

In most large, complex organizations the cost of mission-critical functions is closely tracked so that leaders can take stock of how different practices come together to affect resource use. The approach outlined here provides one means to do just that in high schools. Application of the spending-on-services model to high schools clarifies per-pupil costs and the influence of organizational features on resource allocation.

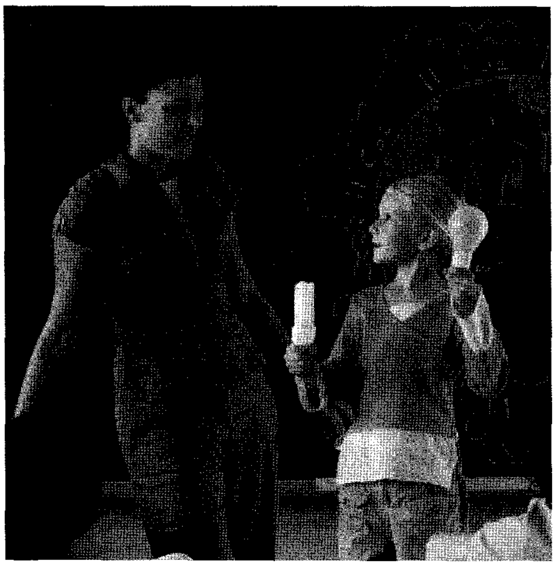
In the coming years, forecasts suggest that education leaders will likely be asked to do more with less. While in the near term the implementation of some of the options noted above may be impeded by contracts and other obligations, over the long term the spending-on-services approach can provide a new lens through which education leaders can view high school redesign. In sum, the spending-on-services approach takes the blinders off, providing education leaders with a powerful tool to inform local resource decisionmaking.

Marguerite Roza is senior scholar at the Center on Reinventing Public Education and a research associate professor at the University of Washington College of Education.

How to Get the



Teachers We Want



Specialization would lead to better teaching and higher salaries

"Human capital" is quickly becoming the new site-based management. While few are sure what it means, everyone craves it, has a model to deliver it, and is quick to tout its restorative powers. It's trendy and impressive sounding, but too often settles for recycling familiar nostrums or half-baked ideas in the guise of new jargon.

Our schools are in a constant, unending race to recruit and then retain some 200,000 teachers annually. Given that U.S. colleges issue perhaps 1.4 million four-year diplomas a year, schools are seeking to bring nearly one of seven new graduates into the teaching profession. No wonder shortages are endemic and quality a persistent concern.

It does not have to be this hard. Our massive, three-decade national experiment in class-size reduction has exacerbated the challenge of finding enough effective teachers. There are other options. Researchers Martin West and Ludger Woessmann have pointed out that several nations that perform impressively on international assessments, including South Korea, Hong Kong, and Japan, boast average middle-school class sizes of more than 35 students per teacher.

To improve schooling, the U.S. has adopted the peculiar policy of hiring ever more teachers and

By FREDERICK M. HESS

PHOTOGRAPHY / GETTY IMAGES

asking them each to do the same job in roughly the same way. This dilutes the talent pool while spreading training and salaries over ever more bodies. As Chester Finn wryly observed in *Troublemaker*, the U.S. has opted to "invest in many more teachers rather than abler ones.... No wonder teaching salaries have barely kept pace with inflation, despite escalating education budgets." Since the early 1970s, growth in the teaching force has outstripped growth in student enrollment by 50 percent. In this decade, as states overextended their commitments during the real estate boom, the ranks of teachers grew at nearly twice the rate of student enrollment. If policymakers had maintained the same overall teacher-to-student ratio since the 1970s, we would need 1 million fewer teachers, training could be focused on a smaller and more able population, and average teacher pay would be close to $75,000 per year.

Even without the constraint of limits on class size, trying to retrofit an outdated model of teaching is a fool's errand. Today's teaching profession is the product of a mid-20th-century labor model that relied on a captive pool of female workers, assumed educators were largely interchangeable, and counted on male principals and superintendents to micromanage a female teaching workforce. Preparation programs were geared to train generalists who operated with little recourse to data or technology. Teaching has clung to these industrial rhythms while professional norms and the larger labor market have changed. By the 1970s, however, schools could no longer depend on an influx of talented young women, as those who once would have entered teaching began to take jobs in engineering and law. The likelihood that a new teacher was a woman who ranked in the top 10 percent of her high school cohort fell by 50 percent between 1964 and 2000. Meanwhile, policymakers and educators were slow to tap new pools of talent; it was not until the late 1980s that they started tinkering with alternative licensure and midcareer recruitment. Even then, they did little to reconfigure professional development, compensation, or career opportunities accordingly.

Even "cutting-edge" proposals typically do not challenge established routines, but instead focus on filling that 200,000-a-year quota with talented 22-year-olds who want to teach into the 2040s. Perhaps the most widely discussed critique of teacher preparation of the past decade, the hotly debated 2006 study by the National Center for Policy Analysis, *Educating School Teachers*, simply presumed that teacher recruitment ought to be geared toward new college graduates who would complete beefed-up versions of familiar training programs before being cleared to enter the same old jobs. Absent was any reconsideration of who should be teaching or any inclination to question the design of the enterprise.

There are smarter, better ways to approach the challenge at hand: expand the hiring pool beyond recent college graduates; staff schools in ways that squeeze more value out of talented teachers; and use technology to make it easier for teachers to be highly effective. A 21st-century human-capital strategy for education should step back from the status quo and revisit existing assumptions.

Who Should Teach?

Recruiting new college graduates for teaching positions made sense 40 years ago, when the typical graduate could expect to hold just five jobs in an entire career. Today, graduates may have held four jobs by age 30. This early career transience, coupled with the increasing prevalence of midcareer transitions, makes it impractical at best to try to identify future teachers at age 20, fully train them before they enter the profession, and then expect them to remain in teaching jobs for decades. That is a sure-fire recipe for repelling today's most talented entrants. The composition of the teaching force is changing of its own accord—even in the absence of coherent new strategies to support this shift. In the 1990–91 federal Schools and Staffing Survey, among teachers of grades 9–12, 70 percent had entered the profession by age 25 and just 6 percent had entered after age 35. In the 2003–04 survey, the most recent data available, the number who had entered by age 25 had declined to just over half (56 percent), while 16 percent had started after age 35. Thus, those who entered the teaching profession after the age of 25 made up just one-tenth of 1 percent of all teachers in 1990–91 but 4.1 percent of all teachers in 2003–04.

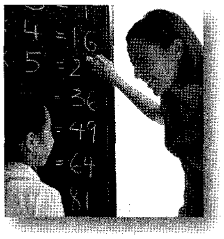
Highly effective teaching entails not only the application of research-based methods, but also leadership, content knowledge, life experience, organization, commitment, wisdom, enthusiasm, and applied knowledge (including a practical sense of how schooling can be put to use). The median working adult who transfers laterally into teaching has likely enjoyed more opportunities to develop these qualities and skills than has the average new college graduate.

The population of college-educated workers already well into their first or second career, made comfortable by early success and now open to more rewarding, meaningful, and engaging work, appears to be substantial. One can safely estimate this population to be in the millions. A 2008 survey by the Woodrow Wilson National Fellowship Foundation reported that 42 percent of college-educated Americans aged 24 to 60 would consider becoming a teacher, and would be more likely to do so if they could count on quality training and support and expect to start at salaries of $50,000 or more. Those who expressed an interest in teaching as a second career were more academically accomplished than those who were not interested. Given current life spans and career trajectories, it is reasonable to imagine that many 35- or 45-year-old entrants might teach for 20 years or more.

It is entirely plausible that a recruitment strategy that seeks to attract a larger percentage of mature entrants could reduce rates of attrition. In 2002, Anthony Morris, now a Mississippi superintendent, studied 1,895 Mississippi teachers and found that older, second-career teachers were more likely to stay in teaching than younger entrants. The National Center for Education Information has concluded, "Individuals who have entered teaching through alternate routes at older ages are more inclined to stay in teaching for longer than people entering teaching in their early-to-late 20s and 30s."

The evidence at hand recommends abandoning the presumption that new college graduates be the backbone of new teacher recruitment. We should not discourage young entrants or discount the notion that some 22-year-olds are ready to play a valuable role in schools, either for a limited period of time (e.g., the private school or Teach For America model) or by committing to a career of classroom teaching. Such recruits, when promising, should be courted and welcomed. But there are good reasons not to presume that the just-out-of-college-teacher should be the *modal* recruit.

> ***Even schools that tout their commitment to professional development and data-driven instruction press teachers to operate as generalists rather than leveraging their particular skills.***



The 68 Percent Problem

Currently, there are approximately 3.3 million K–12 teachers in the United States, representing nearly 10 percent of the college-educated workforce. It should be no great surprise that some educators are far more skilled than others at teaching reading or mentoring at-risk youth. Yet schools and school systems casually waste scarce talent by operating on the implicit assumption that most teachers will be similarly adept at everything. In a routine day, a terrific 4th-grade reading teacher might give lessons in reading for just one hour, while spending another five hours teaching other subjects in which she is less effective, filling out paperwork, and so on. This is an extravagant waste of talent, especially when there is widespread agreement that reading is an area of high-impact instruction that deserves special emphasis. In fact, general enthusiasm for mainstreaming children with special needs, untracked classrooms, and "differentiated instruction" have increased the breadth of demands placed on a typical teacher. Although about 60 percent of today's K–12 teachers have a master's or specialist's degree, these credentials generally have little impact on work routines or the scope of an individual's responsibilities.

Schools require all teachers to devote time and energy to bureaucratic duties, patrolling hallways and cafeterias, taking attendance, and compiling report cards. The problem here is that school and district officials are conscious of expenses related to salary and materials but fail to account for the opportunity costs of not leveraging the talent already in the schools. Even schools that tout their commitment to professional development and data-driven instruction press teachers to operate as generalists rather than leveraging their particular skills.

Two decades of surveys by the National Center for Education Statistics (NCES) suggest that the typical teacher spends only about 68 percent of classroom time on instruction related to core academic subjects, with the remainder consumed by administrative tasks, fundraising, assemblies, socialization, and so forth. Provisions for substantial numbers of sick days as well as collective bargaining agreements and management practices that result in the universal imposition of noninstructional responsibilities have all conspired to ensure that schools do not maximize the contributions from the talent they do have.

Rewriting the Job Description

The challenge, in short, is to find ways to "squeeze more juice from the orange" by using support staff, instructional specialization, and technology to ensure that effective educators are devoting more of their time to educating students. There are a number of possible approaches to the problem.

One course of action would entail hiring support staff who have not undergone as much training as teachers and are relatively inexpensive. Assigning administrative and other noninstructional tasks to the support staff would free up teachers to perform the work for which they are best suited. Teachers would be deployed according to their particular talents and focused preparation. Elementary reading instruction, for example, might be recognized as a role distinct from other tasks, with research-based preparation for diagnosing, instructing, and supporting early readers taught in highly specialized training programs. Teaching in remedial math at the secondary level might be another area suited to taking advantage of specific skills and training. Alternatively, rather than continuing to accept the notion that one either is a teacher or is not, schools might embrace hybrid positions to allow talented educators to grow by leveraging their skills in new ways, even as they continue teaching. A district might downsize its central office and invest those dollars in freeing up talented veterans to take on half-time teaching loads, with the other 50 percent of their time devoted to such responsibilities as professional development, curriculum development, or parent outreach. Rather than walling off instruction from these kinds of positions, teachers might be given the chance to grow in the course of their professional life without having to abandon the classroom.

> ***In a well-run medical practice, surgeons do not spend time filling out patient charts or negotiating with insurance companies; these responsibilities are left to nurses or support staff.***

K–12 schooling already employs a large number of school-based personnel who are not teachers; support staff (including aides, librarians, guidance counselors, and so forth) account for about 30 percent of school employees. NCES reports that there are more than 600,000 "instructional aides" in K–12 schools, but the scant evidence available leaves one skeptical that these employees are utilized in a fashion that maximizes teacher effectiveness or alleviates teacher responsibilities. Indeed, the two populations have grown in tandem in recent decades.

Other professions arrange work patterns much differently. In medicine, a century's worth of gains has been reaped by increasing specialization: the American Medical Association now recognizes 199 specialties. Today there are 5 million medical professionals in the U.S., but just 500,000 physicians. The rest are trained practitioners with complementary talents. In a well-run medical practice, surgeons do not spend time filling out patient charts or negotiating with insurance companies; these responsibilities are left to nurses or support staff. Similarly, not even junior attorneys are expected to file their own paperwork, compile their billing reports, or type letters to clients. These tasks are performed by paralegals and secretaries.

Such efforts to fully utilize talent and expertise have been largely absent in schooling, apart from some small-scale initiatives. One innovation worth exploring employs community resources to augment school staff. Boston-based Citizen Schools, for example, provides highly regarded after-school instruction and career-based learning by arranging for local volunteers to work with students on a regular basis. Rather than simply mentoring or tutoring students, participants teach weekly modules that tackle complex projects with interested students. Citizen Schools leverages the expertise of local professionals on a part-time (and cost-free) basis and points to the promise of approaches that do not wholly depend on full-time, career-long staffing. The key is to stop thinking of teaching as an "all-or-nothing" job and to create models that include the support and opportunity for steady part-timers who also have other obligations or complementary jobs. This "consultant" approach could reflect the way other kinds of organizations tap into particular expertise or retain the service of talented professionals despite changing life circumstances.

Another approach would utilize technology for tasks where teachers are able to add limited value. For instance, monitoring student achievement via technology might alleviate the need for teachers to devote substantial time to administering, grading, and entering data generated by formative assessments. One such example is provided by Wireless Generation software, which enables elementary school teachers to use Palm Pilots as tools in assessing and tracking early reading performance. This saves teachers substantial time in the assessment and data-entry process, and makes immediately available a wealth of easily manipulated information on student performance.

Technology can also be used to change the way some education services are delivered. Today's model requires schools with many classrooms, each featuring a teacher working face-to-face with a particular group of students. This "people-everywhere" strategy is expensive and limits the available talent pool, as some potentially effective educators may be unwilling to relocate to the communities where they are needed. Thus far this has not been a challenge for the premier school districts, like those in Westchester

(New York), Montgomery (Maryland), or Fairfax (Virginia) counties, or for charter school operators like KIPP (Knowledge Is Power Program) or Uncommon Schools, but it does impose a ceiling on the number of schools and districts that can rely on the people and strategies that drive success in these organizations. In accepting the assumption that each classroom should include a generic "teacher" and as few children as possible, these schools are entirely dependent on their ability to attract talented, high-energy staff, dramatically limiting the likelihood that these admired programs will be able to achieve the hoped-for scale.

Perhaps the most significant impact of education technology is its potential to eliminate obstacles posed by geography. Web-based delivery systems can take advantage of the wealth of highly educated, English-speaking people in nations like India willing to tutor children at relatively inexpensive rates. Washington, D.C.–based SMARTHINKING, Inc., uses American and international tutors to provide intensive instruction to students. Students can log on to the company's web site 24 hours a day, seven days a week, and work in real time with experts in various academic subjects.

When technology is used to deliver instruction or tutoring from a distance, it offers opportunities to create "classrooms" with large numbers of children (as in South Korea or Singapore) and to streamline the "teacher's" role. In either case, the challenge of finding enough high-quality local personnel becomes more manageable. Technology also makes it easier for schools in different locations to communicate or share staff and enables central administrators to deliver support to campuses hundreds of miles away.

Some skeptics have suggested that technology cannot be substituted for and very likely cannot meaningfully augment the work that teachers do. This argument underlies the dismal failure in education to use new technologies, from the television to the PC to the Internet, as labor-saving devices (see "How Do We Transform Our Schools?" *features*, Summer 2008). Schools similarly have foundered under a "supplement, not supplant" mind-set in which there has been fierce resistance to fully utilizing cutting-edge innovations. Too often, discussions about the use of computers, web-based delivery, and instructional software fail to consider what needs to be done in policy, school organization, or within the teaching profession to take full advantage of those tools.

Different Pay for Different Work

Rethinking recruitment assumptions and job descriptions requires new models for salaries and benefits. If the ideal new teacher is a recent college graduate who intends to remain in the profession for decades, there is a logic to relying on seniority to allocate salary and positional perks. If, however, the ideal entrant is someone aged 30 to 55 who has worked for several years in another field and accumulated experience and skills, this paradigm is needlessly constraining. Benefit systems that penalize shorter terms of service are a stumbling block for second-career teachers; comparable salaries and a defined-contribution 401(k)-type retirement plan make a lateral move more attractive.

While the aim should be to create a profession with various roles and specializations, it should not be presumed that differential compensation requires finely graded hierarchies. Even seemingly sophisticated proponents of compensation reform have too often advocated variations on the blunt Pavlovian approach of paying more for higher student test scores while neglecting the broader design of the profession. After all, every teacher under a Denver Public Schools ProComp-style system still enters teaching at roughly the same salary and with roughly the same job description. Every teacher pursues the same bonuses and seeks to climb the same career ladder. This would be akin to a law firm requiring every new J.D. to start as a paralegal and then eventually become a lawyer, or hospitals requiring every new M.D. to begin as a nurse, then become a general practitioner, and eventually a specialist.

Law and medicine have weakened or even severed the link between an employee's formal place in an organizational hierarchy and expected compensation. By allowing pay to reflect perceived value, these fields have fostered norms whereby accomplished attorneys or doctors spend their careers making use of their skills and earn outsized compensation without ever moving into management or administration. That kind of a model in education would permit truly revolutionary approaches to recruiting and retaining quality educators.

In moving away from the familiar pay scale, it's not enough to simply add bonuses atop the existing arrangement. If teachers are tutoring over the web or providing support services, their compensation needs to be reshaped accordingly. Payment might be by the hour, for each student successfully served, or in some other fashion—but it requires systemic redesign that even radical reformers have yet to undertake.

Ultimately, the goal is to rethink the teacher challenges of the 21st century. We are feeling our way toward a new and hopefully more fruitful era of teaching and learning. We have been slowed by habits of mind, culture, and institutional inertia that imagine a future for schools and school districts that embodies today's familiar assumptions. While we should recognize that institutions change slowly and celebrate incremental advances, we should not allow that to obscure the goal: to recruit the most promising talent and then foster a more flexible, rewarding, and performance-focused profession.

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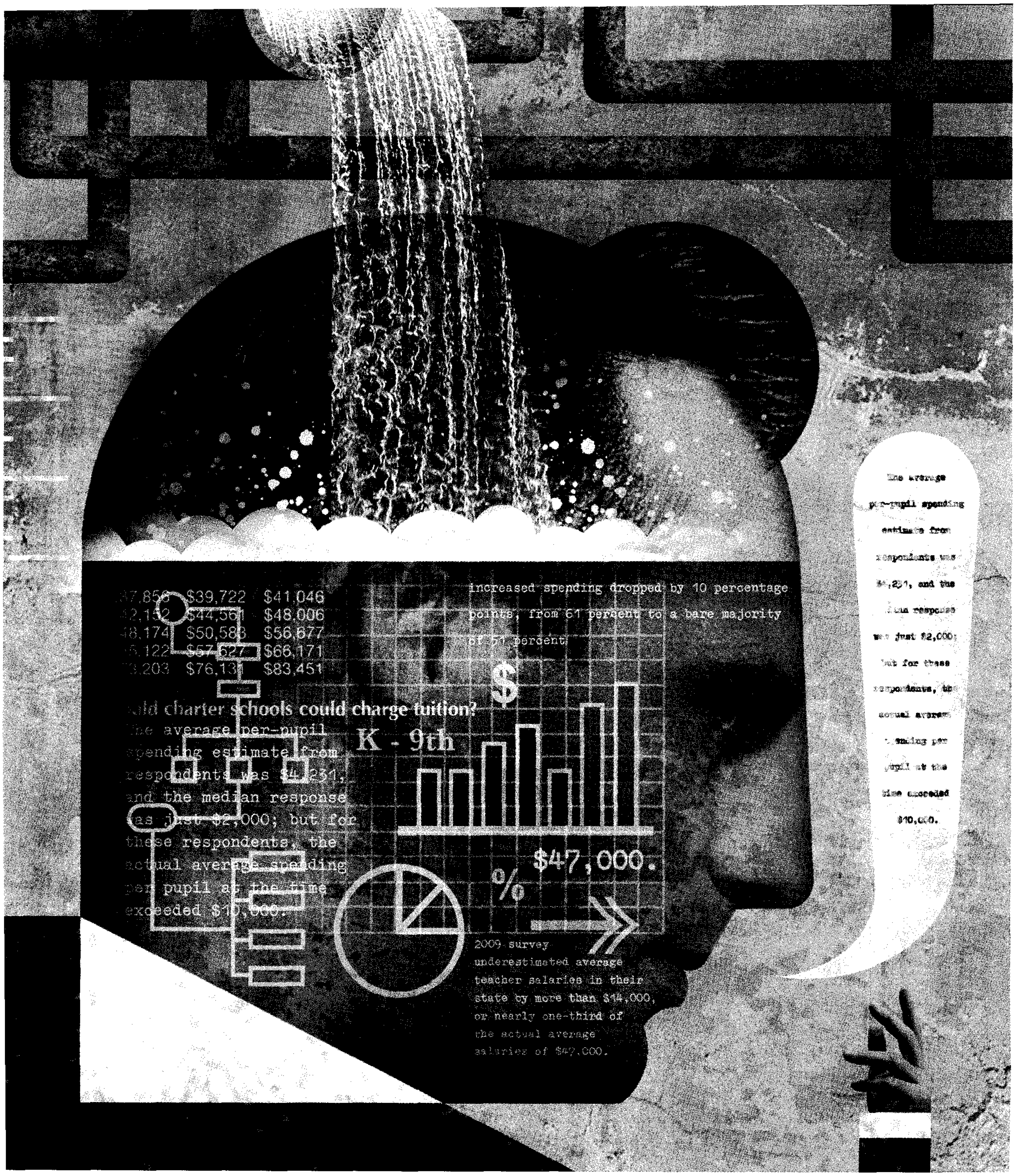
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charter schools could charge tuition?
The average per-pupil
spending estimate from
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exceeded $10,000.
K - 9th
increased spending dropped by 10 percentage
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ILLUSTRATION / GORDON STUDER

Educating the Public

By WILLIAM G. HOWELL and MARTIN R. WEST

Most people express strong opinions about public education. But only a few know the basic facts about the public schools: how much they spend, how well teachers are paid, and what schools can and cannot do.

How information affects Americans' support for school spending and charter schools

What happens when the public learns the facts about schools and deliberates responsibly about public education? Do citizens update their views on policies designed to improve public schooling? Or do they hold steadfast to their opinions, suggesting that whatever animates debate about education it is not an abiding concern about what is actually happening in our nation's schools?

A series of experiments embedded within a national survey that we conducted in 2008 shed new light on what happens to public opinion on education when it is informed about some key facts. We divided respondents into randomly chosen groups: some were simply asked their opinion about school spending, teacher salaries, and charter schools, while others were first provided with accurate information about each of these issues. Because all that distinguished the more-informed respondents from the others is chance, we can be confident that any differences between the views of the two groups are attributable to the information provided.

The results are striking. Accurate information about what is currently being spent on public schools reduces both support for increased spending and confidence that more spending would improve student learning. Knowing how much the average teacher earns lowers support for salary increases. We observe only a modest effect of information on the views of current teachers who were surveyed and on those of respondents who are most satisfied with the performance of their local public schools. And while providing accurate information about charter schools does not change the balance of support among the public as a whole, it dramatically increases support among secular liberal respondents while undermining it among religious conservatives.

A Knowledge Deficit

It is no surprise that members of the public are eager to voice their opinions about education policy. Virtually all American adults have had direct experience with the nation's public schools, whether as students, parents or grandparents of students, or employees. (In 2005, there were more than 6.1 million public school teachers and other district workers.) And the constantly rising cost of operating the schools, which accounts for nearly one-quarter of state and local spending nationwide, directly affects the pocketbook of every taxpayer.

Surveys nonetheless consistently reveal widespread misunderstanding of our schools and of prominent efforts to reform them. Consider the issue of school spending. Our research shows that Americans dramatically underestimate the amount spent on public schools in their districts, even when prompted to consider the full range of uses to which school spending is devoted. They also think that teachers earn, on average, far less than is actually the case. It seems that the public's strong preference that more be spent on public education is based, at least in part, on faulty information (see "Is the Price Right?" *features*, Summer 2008).

The question is whether the sources of the public's ignorance systematically influence the policy views that people express.

Although Americans as a whole are cautiously supportive of charter schools, most reveal confusion about their basic features. For example, when we asked respondents in our 2007 survey whether charter schools are free to teach religion (they are not), or whether they can charge tuition (they cannot), almost two-thirds of the public confessed to not knowing the answer and another quarter got it wrong. Indeed, only 13 percent of adults nationwide correctly noted that charter schools cannot teach religion and 16 percent correctly observed that charter schools may not charge tuition (see "What Americans Think About Their Schools," *features*, Fall 2007).

There is nothing special about education policy, of course. Multiple generations of political scientists have documented alarming rates of public ignorance about all sorts of policy issues.

The pertinent question, then, is not whether the public is ignorant about education or any other policy domain; it unmistakably is. Rather, the question is whether the sources of the public's ignorance—inattention, confusion about the state of the world, biases and prejudices, or anything else—systematically influence the policy views that people express, and, in turn, whether these views change when facts come to the fore, as they can in responsible political deliberation.

On this last score, we think, the results from our survey experiments on school spending, teacher salaries, and charter schools provide a basis for optimism. Much of the American public appears quite willing to update its views in light of new information about public schools.

Public School Spending

A solid majority of the public supports increased funding for public schools. More than 60 percent of respondents we surveyed in 2007 believed that spending should "greatly increase" or "increase," 32 percent said that spending should "stay about the same," and less than 10 percent suggested it ought to decrease. As might be expected, support for higher spending was especially strong among public school teachers.

Americans, though, vastly underestimate the amount of money spent on public schools. The average per-pupil spending estimate from respondents was $4,231, and the median response was just $2,000; but for these respondents, local average spending per pupil at the time exceeded $10,000.

To investigate the relationship between information and attitudes on school spending, we conducted a simple experiment in our 2008 survey. Half the sample was asked, "Do you think that government funding for public schools in your district should increase, decrease, or stay about the same?" The other half of the sample, randomly chosen, was first informed of the average per-pupil expenditure in their school district before being asked the same question. (See the methodological sidebar for details on how respondents were matched to districts.)

When told how much the local schools were spending, respondents tempered their enthusiasm for spending increases. For the public as a whole, support for increased spending dropped by 10 percentage points, from 61 percent to a bare majority of 51 percent (see Figure 1). This difference is statistically significant, as are the differences discussed below.

The effect of accurate information carried over into respondents' professed confidence that increased spending would improve student learning, although the change was more modest in size. Sixty percent of the public not provided with new information claimed to be either "very confident" or "confident" that more spending would improve student learning, compared to 55 percent of respondents who were told how much is spent on their local schools. Similarly, the share of respondents in the two groups who were "very confident" in the benefits of increased spending was 16 and 12 percent, respectively.

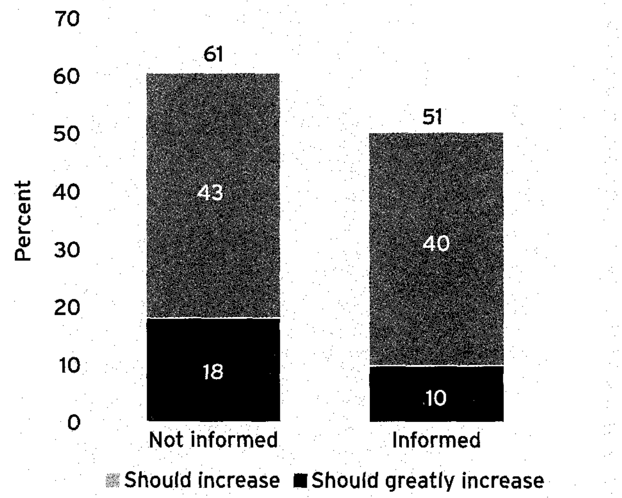
These differences are consistent across a wide range of subgroups, as defined by socioeconomic backgrounds, views about the local public schools, and political ideologies. Interestingly, differences also appear among teachers, whom one might think already have deeply entrenched and well-informed views about public education. Whereas 35 percent of teachers not specifically informed of spending levels claimed that spending should "greatly increase," only 22 percent of those who were told the amount of money spent to educate a child in their district thought so. Additionally, 29 percent of teachers in the first group expressed strong confidence that increased spending would boost student learning, compared to 20 percent of those who were provided with information on current spending.

Even so, half of Americans—and much larger shares of ethnic minorities and teachers—continued to believe that spending on their local public schools should increase, even when given accurate information on current spending levels. Only 1 in 10 respondents reported that spending should decrease.

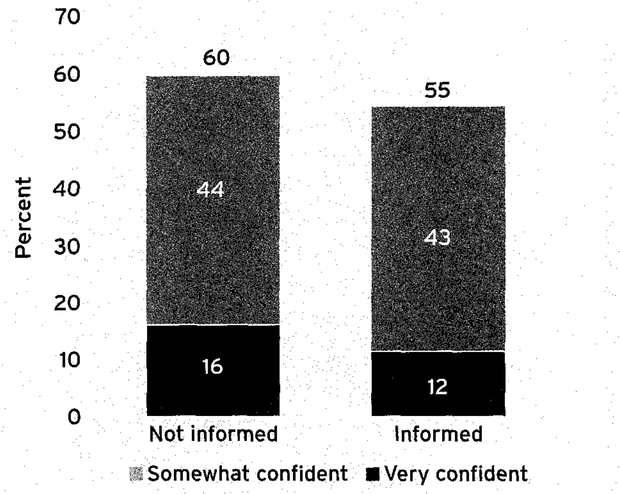
A Dose of Reality (Figure 1)

Respondents who were informed about current spending levels in their district were less enthusiastic about spending more and somewhat less confident that spending would improve learning.

Views on School Spending



Confidence That Increased Spending Would Improve Student Learning



Note: Numbers do not sum due to rounding.

SOURCE: Authors' calculations; 2008 Education Next-PEPG Survey of Public Opinion

Teacher Salaries

The bulk of the American public also supports increasing teacher salaries. As with per-pupil expenditures, the public significantly underestimates how much the governments in their states pay public school teachers. On average, respondents in our 2007 survey underestimated average teacher salaries in their state by more than $14,000, or nearly one-third of the actual average salaries of $47,000.

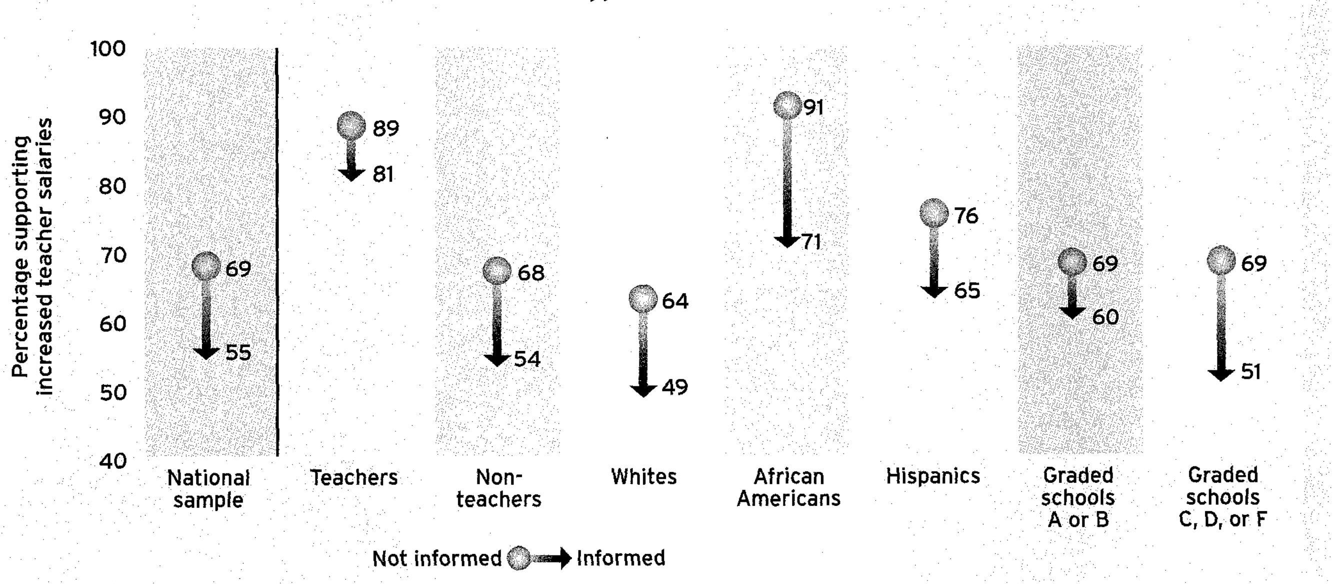
We conducted an experiment in 2008 on teacher salaries, similar to that on spending, in which half the sample was asked directly, "Do you think that teacher salaries in your state should increase, decrease, or stay about the same?" and the other half was first informed about the average teacher salaries in their state. (Again, see the sidebar for details on our data sources and methods.)

When asked directly, 69 percent of the public supported increasing teacher salaries, 28 percent thought they should stay about the same, and just 4 percent believed that they should be decreased. Looking across various subgroups of the population, African Americans and teachers appeared most enthusiastic about increasing teacher salaries, with roughly 9 out of 10 endorsing a salary increase. Whites, meanwhile, were most skeptical.

Responses again diverged from this pattern when information was provided (see Figure 2). Among the public as a whole, information about actual teacher salaries depressed support for

Slipping Support (Figure 2)

Information on teacher salaries lowered support for pay increases far more among African Americans than among teachers, though the two groups were equally supportive absent this knowledge. Information also lowered support for salary increases by a large amount among those least satisfied with their local schools.



SOURCE: Authors' calculations; 2008 Education Next-PEPG Survey of Public Opinion

salary increases by fully 14 percentage points. Notably, the percentage of people who advocated for salary cuts remained constant, with those preferring that salaries stay about the same picking up the remainder.

The two most enthusiastic groups of supporters of increasing teacher salaries, however, responded very differently from one another to the experiment. Support for increasing salaries dropped by 20 percentage points (from 91 to 71 percent) among African Americans who were told about actual teacher salaries. The larger effects among African Americans do not appear to reflect differences in income, as the effects are equally pronounced among those African Americans in households earning more than $50,000 annually. Support among teachers, meanwhile, dropped by just 8 percentage points.

What should we make of the fact that teachers substantially downgrade their assessments of the need for higher per-pupil expenditures, but not for higher salaries, when they are exposed to basic facts about actual spending? One might theorize that teachers are already well informed about actual salaries, and hence they have no need to update their views when presented with facts. This, however, does not appear to be the case: teachers underestimated, on average, teacher salaries in their state by almost $9,500 (or 20 percent of actual salaries), making them only modestly more accurate in their assessments than the public as a whole.

Self-interest appears the more likely explanation for the relatively small effect of information on teachers. Told that teachers in their state earn more on average than they thought, the teachers' appetite for still higher salaries is hardly abated.

The effect of information also varied according to respondents' degree of satisfaction with their local public schools. Among those who earlier in the same survey assigned the schools in their community a

Told that teachers in their state earn more on average than they thought, the teachers' appetite for still higher salaries is hardly abated.

grade of A or B, the provision of information on actual teacher salaries reduced support by just 9 percentage points, from 69 percent to 60 percent. Among respondents who assigned their schools a grade of C or lower, information reduced support by a whopping 18 percentage points. Again, these differences in treatment effects do not simply reflect differences in the accuracy of prior knowledge. Respondents assigning lower grades to local schools were no less accurate in their initial estimates of teacher salaries than the national population.

Charter Schools

A plurality of the public as a whole supports charter schools, with 16 percent expressing "complete" support and another 26 percent saying that they support them "somewhat." Indeed, supporters of charter schools outnumber opponents by more than two to one. The most common response, however, is "neither support nor oppose." Roughly 40 percent of the American public remains undecided about the merits of this breed of public school.

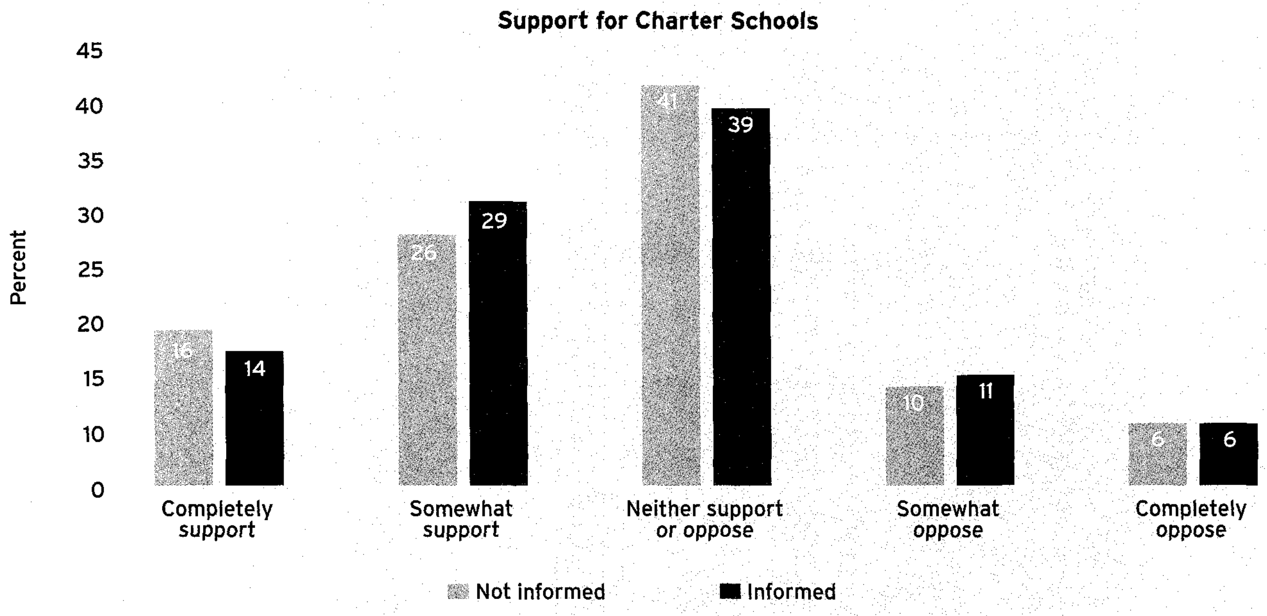
This pattern of lukewarm support reflects the views of respondents presented with the following description of charter schools: "Many states permit the formation of charter schools, which are publicly funded but are not managed by the local school board. These schools are expected to meet promised objectives, but are exempt from many state regulations."

As noted above, however, our 2007 survey revealed widespread confusion about charter schools. For example, less than 1 in 10 respondents knew that charter schools may neither charge tuition nor provide religious instruction. To investigate the effect of such uncertainties and misperceptions about charter schools on the public's willingness to endorse them, we informed a randomly chosen group of respondents that charter schools "cannot charge tuition and they cannot provide religious instruction" before probing their support.

The responses of the public as a whole were scarcely affected by this additional information (see Figure 3). The picture changes dramatically when we group the population according to self-identified political ideology (see Figure 4). Forty-nine percent of conservatives and 36 percent of liberals who were not provided information supported charter schools. But when they were told that charter schools are tuition-free and secular, support dropped among conservatives by 6 percentage points and increased among liberals by 11 percentage points. Indeed, when provided information, liberals were 4 percentage points more likely to support charter schools than were conservatives.

Still Uncertain about Charters (Figure 3)

Informing Americans that charter schools could neither charge tuition nor teach religion had little effect on support for the schools among the public as a whole. A plurality of the public remained ambivalent.

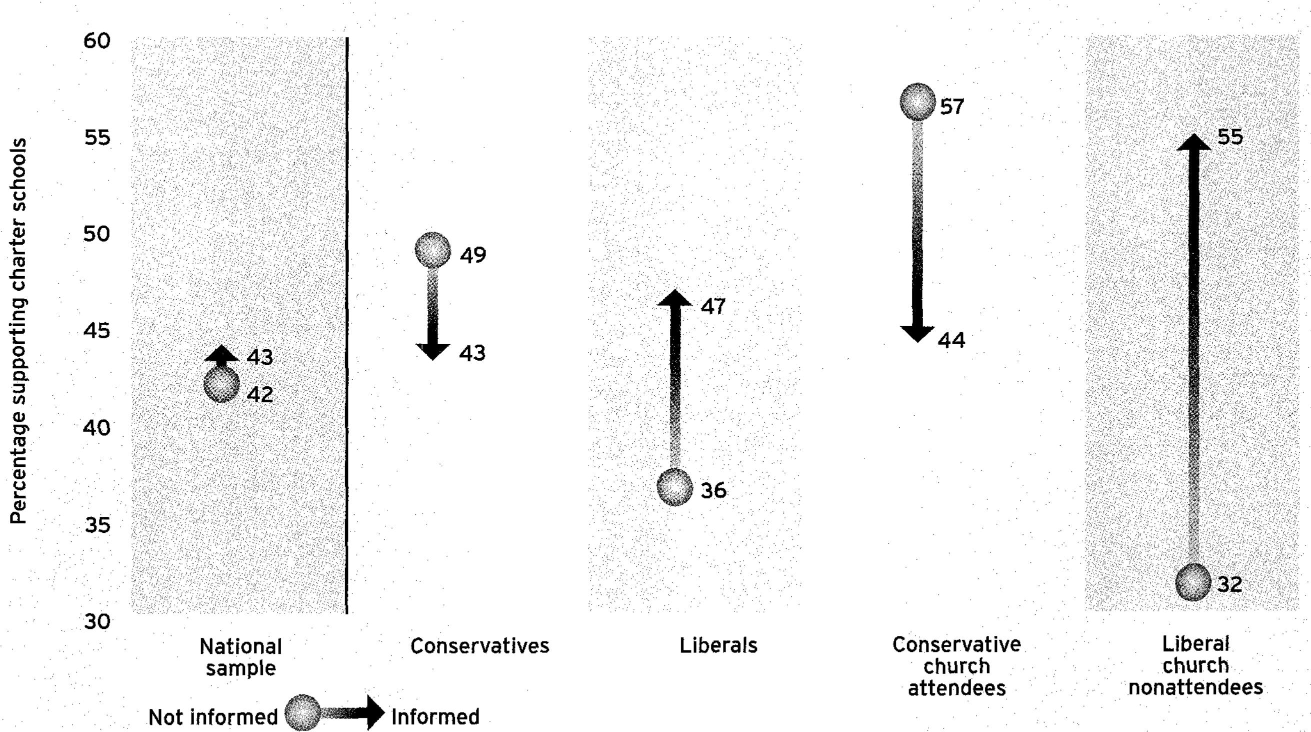


SOURCE: Authors' calculations; 2008 Education Next-PEPG Survey of Public Opinion

Veering Left (Figure 4)

Information about charter schools boosted support among liberals (especially the most secular) but reduced it among conservatives (especially the most religious).

Effects of Information on Support for Charter Schools



SOURCE: Authors' calculations; 2008 Education Next-PEPG Survey of Public Opinion

What explains this shift? A closer look at the data suggests that the key factor may be religion. Among self-identified conservatives who attend church at least once a week, support for charter schools was 13 percentage points lower for those provided with information. Conversely, support among liberals who never attend church increased by a whopping 23 percentage points, from 32 to 55 percent.

In a final wrinkle in the experiment, we provided another randomly chosen group of respondents with one additional piece of information about charter schools: that they "cannot choose among students who apply." This information did not shift attitudes one way or another relative to the views expressed by those informed only about tuition and religion. This was true for the public as a whole as well as for the groups that had been most sensitive to the information about tuition and religion.

As the public becomes more informed about public charter schools, core support for them may shift from the right to the left of the political spectrum.

Conclusion

Our investigation of the effects of information on public support for school spending and charter schools yields strikingly different patterns.

Information on per-pupil expenditures tempered the public's enthusiasm for increased spending, both among survey respondents as a whole and across a wide array of subgroups. At the time this experiment was conducted (early in 2008), a slight majority continued to support increased spending. We do not know whether, in the current economic crisis, information about actual expenditures might further depress support for spending hikes.

Information about actual teacher salaries also tended to depress support for salary increases, a finding that may complicate recent proposals to provide the public with accurate information about compensation packages as a strategy to enhance teacher recruitment. The fact that the public thinks teachers earn so much less than they actually do surely makes it more difficult to attract talented candidates into the profession. But our results suggest that efforts to publicize the truth about teacher salaries would also make it substantially harder to build support for further salary increases.

It is hardly surprising that the effects of information about salaries were quite modest among teachers, who have a personal stake in better pay. Yet the fact that information had especially large and negative effects on support for increased teacher salaries among African Americans and those least satisfied with their local public schools may hold important implications for the politics of education in the large urban districts where these groups are most concentrated. An urban superintendent seeking to reform teacher compensation might well increase support among the district's constituents by ensuring that they have accurate information about what teachers currently earn.

When some key areas of confusion about charter schools are cleared up, overall public support for charter schools appears unaffected. This null finding, however, masks huge effects within certain groups. More information led to lower levels of support among conservatives, especially the more religiously devout, but raised support among secular liberals.

These last findings suggest that information, rather than facilitating compromise and consensus, can actually polarize debate. They also portend a major shift in the political landscape of school choice. Traditionally, charter schools have been viewed as falling primarily within the province of conservatives' preferred education reforms. Yet our results show that basic facts about the design of charter schools appeal more to liberals. It is quite possible, then, that as the public becomes more informed about these public schools, core support for them may shift from the right to the left of the political spectrum. Indeed, the recent election of a liberal (and presumably well-informed) president who professes strong support of charter schools may be a sign that this process is under way.

William G. Howell is associate professor in the Harris School of Public Policy at the University of Chicago. Martin R. West is assistant professor of education at Brown University and an executive editor of Education Next.

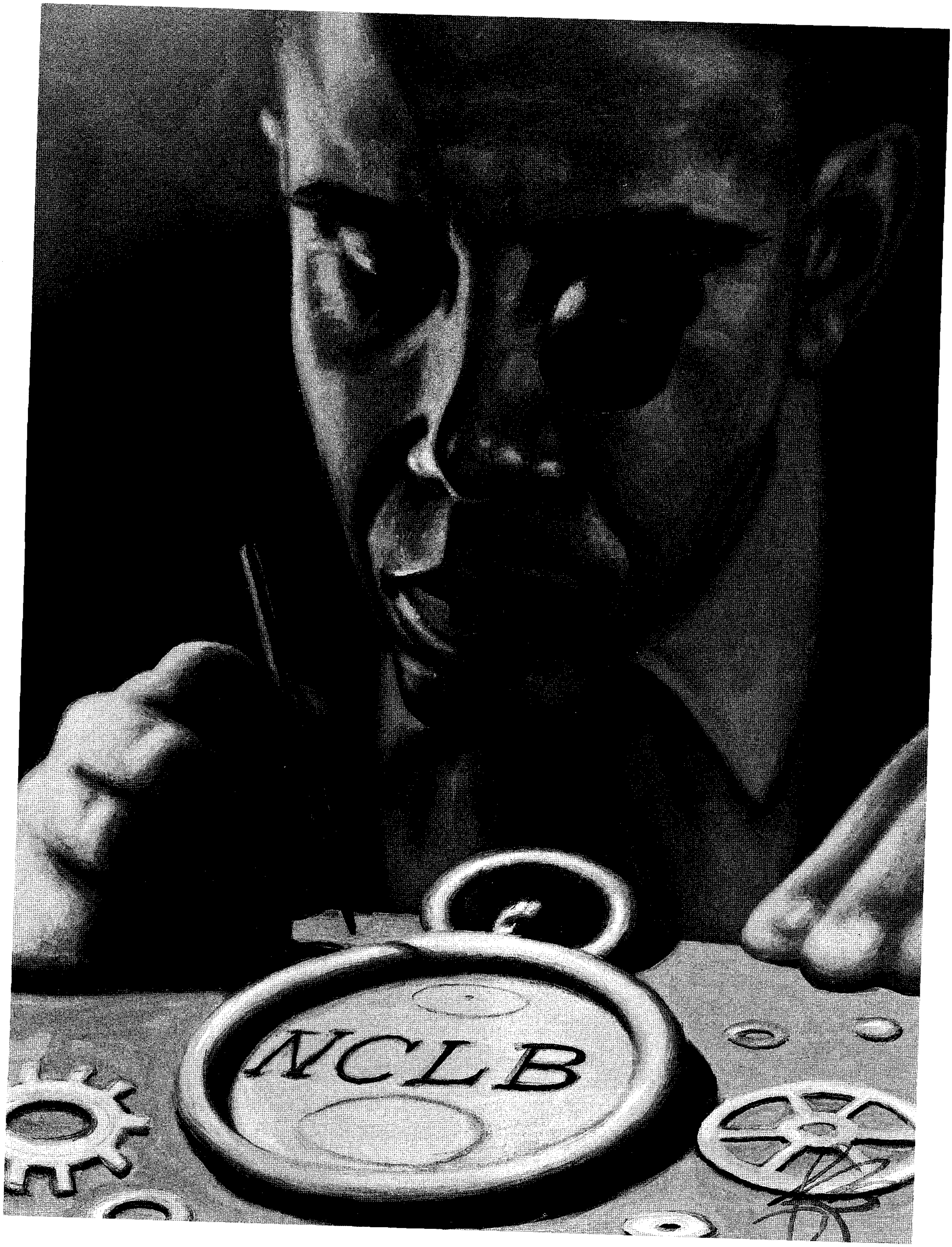
Methodology

This survey, sponsored by *Education Next* and the Program on Education Policy and Governance (PEPG) at Harvard University, was conducted by the polling firm Knowledge Networks (KN) between February 16 and March 15, 2008. KN maintains a nationally representative panel of adults, obtained via list-assisted random digit dialing sampling techniques, who agree to participate in a limited number of online surveys. Because KN offers members of its panel free Internet access and a WebTV device that connects to a telephone and television, the sample is not limited to current computer owners or users with Internet access. When recruiting for the panel, KN sends out an advance mailing and follows up with at least 15 dial attempts. The panel, then, is updated quarterly. Detailed information about the maintenance of the KN panel, the protocols used to administer surveys, and the comparability of online and telephone surveys is available online (www.knowledgenetworks.com/quality/).

The findings from the 2008 *Education Next*-PEPG survey reported in this essay are based on a nationally representative stratified sample of 2,500 adults (age 18 years and older) and an oversample of 700 public school teachers (see "The 2008 *Education Next*-PEPG Survey of Public Opinion," *features*, Fall 2008). The sample consists of 2,546 non-Hispanic whites, 250 non-Hispanic blacks, and 239 Hispanics. We use poststratification population weights to adjust for survey nonresponse as well as for the oversampling of teachers. These weights ensure that the observed demographic characteristics of the final sample match the known characteristics of the national adult population.

To conduct the spending experiment, we matched survey respondents to school districts using either census blocks or zip codes. When we relied on zip codes, we could not match some respondents to a unique school district. For such respondents we calculated the average per-pupil spending levels for each district that served the relevant zip code, weighted by districts' population sizes.

Teacher salary data, by contrast, are available only at the state level. We were able to match all survey respondents to the states in which they resided. Data on per-pupil spending come from the National Center for Education Statistics Common Core of Data, "Local Education Agency Finance Survey." Data on teacher salaries come from the American Federation of Teachers publication "Survey and Analysis of Teacher Salary Trends 2005." Both sources cover the 2004-05 academic year, the latest for which this information is available.


NCLB

Education Next talks to
JOHN CHUBB
and
DIANE RAVITCH

THE FUTURE OF No Child Left Behind

• • • • • • • • • •

End it? Or mend it?

More than seven years ago, President George W. Bush signed No Child Left Behind (NCLB) into law. Sweeping calls for testing, intervening in persistently low-performing schools, and policing teacher quality made it the most ambitious legislation on K–12 schooling in American history. The law, due for congressional reauthorization in 2007, still awaits legislative action. This spring, the Hoover Institution's Koret Task Force issued 10 recommendations to guide reauthorization (available at www.hooverpress.org). In this forum, lead author of *Learning from No Child Left Behind*, EdisonLearning's John Chubb, and education historian and former task force member Diane Ravitch, who declined to sign the recommendations, weigh in on the future of the law.

John Chubb

Diane Ravitch

EDUCATION NEXT: Is NCLB working? Should it be reauthorized?

Diane Ravitch: It is time to pull the plug on No Child Left Behind. It has had adequate time to prove itself. It has failed. After seven years of trying, there is no reason to believe that the results of NCLB will get dramatically better. Now is the time for fundamental rethinking of the federal role in education.

NCLB has produced meager gains in achievement. The National Assessment of Educational Progress (NAEP) assesses student achievement in reading and mathematics every other year. Despite the intense concentration on reading and mathematics required by the law, the gains registered on NAEP since the enactment of NCLB have been unimpressive.

In 4th-grade reading, the gains after implementation of NCLB, from 2003 to 2007,

ILLUSTRATION / JAMES BENNETT

were small (three points) and exactly the same as the gains from 1998 to 2003. Fourth graders in the bottom 10th percentile of performance had a five-point gain after NCLB, but this did not compare to the 10-point jump in their scores from 2000 to 2002 pre-NCLB (see Figure 1).

In 8th-grade reading, there were essentially no gains from 1998 to 2007. Student performance was a flat line both before and after NCLB.

Mathematics was tested in 1996, 2000, 2003, 2005, and 2007. The gains preceding the adoption of NCLB were larger than those posted after NCLB. From 2000 to 2003, 4th-grade students recorded a nine-point gain in mathematics, compared to a gain of only five points from 2003 to 2007. Among 4th-grade students in the lowest decile, there was an astonishing 13-point gain from 2000 to 2003 pre-NCLB; the same group saw a gain of only five points from 2003 to 2007. The same deceleration of student improvement was seen at all performance levels, from top to bottom.

In 8th-grade mathematics, gains also slowed after the passage of NCLB. Eighth graders saw a five-point gain from 2000 to 2003, but only a three-point gain from 2003 to 2007.

John Chubb: NCLB will and should be reauthorized. Absolutely, student achievement has grown much more rapidly in the last decade—the NCLB era—than during the 1990s, especially for the lowest-achieving and most-disadvantaged students in the nation. Achievement is what NCLB is all about, so the law has met its most basic test. This is recognized by even the law's critics which is why the only discussion in Washington is how to mend the law. The Obama administration recognizes that No Child Left Behind aims to help the federal government perform its most important education function: improving the education of students in greatest need. The new president is supported in this view by a bipartisan majority in Congress, which has worked for many years to ensure that poor kids get the help they require. The education needs that NCLB addresses are not going away, nor is the need for funding. Indeed, the economic stimulus bill passed in February increased funding for NCLB by 80 percent, and these provisions of the massive and controversial bill met no objections.

Over half of poor and minority students have reading and math skills far below grade level, whether measured by the tough performance standards of the NAEP or by the standards of the various states. Dropout rates, measured accurately only since NCLB made them part of Title I accountability, hover around 50 percent in many major cities.

NCLB is based on sound principles and should with time improve the achievement of all American children, especially economically disadvantaged and racial minorities. There is empirical evidence these principles are working. The Thomas B. Fordham Foundation recently completed an analysis of the top and bottom 10 percent of all students tested by NAEP. It found that the bottom 10 percent had gained far more than the national average since 2000 in math and reading, more than a full grade level in math. The top 10 percent had gained as well, providing no evidence that schools were ignoring the best students while focusing on the kids below proficient and subject to NCLB sanctions. Both groups of students had also gained more since 2000 than they had during the 1990s. The federal government's own comprehensive analysis of Title I, mandated by Congress, conducted by RAND among others, and published in 2007 after several years of NCLB experience, found the largest academic gains since 2000 and 2003 among students in high-poverty schools. To be clear, the evidence in total is early, and the research is incomplete. But there is no question that American kids, especially the most disadvantaged, are making progress. It is absolutely mistaken to suggest that NAEP changes pre- and post-2003 are evidence that NCLB has been counterproductive. Disadvantaged kids are achieving far more today than ever before, and those gains are attributable to higher standards and tougher accountability that began in the states in the 1990s and accelerated with NCLB.

Over half of poor and minority students have reading and math skills far below grade level, whether measured by the tough performance standards of the NAEP or by the standards of the various states. Dropout rates, measured accurately only since NCLB made them part of Title I accountability, hover around 50 percent in many major cities. —JC

EN: What are the strengths and weaknesses of the NCLB approach to assessment?

DR: Educators and the public are getting wise to the uselessness of the testing regime that has been foisted upon them. A year ago, North Carolina's Blue Ribbon Commission on Testing and Accountability issued a report recommending a sharp reduction in the number of tests that the state required. The chairman of the commission, Sam Houston, said, "We're testing more but we're not seeing the results. We're not seeing graduation rates increasing. We're not seeing remediation rates decreasing. Somewhere along the way testing isn't aligning with excellence."

NCLB may in reality be dumbing down our children by focusing the attention of teachers and administrators solely on basic skills. Our students are not being prepared to compete with students from high-performing nations in the world. Many are not getting an education based on a coherent, content-rich curriculum in history, geography, the arts, science, foreign languages, and literature. They are not getting a good education. They are getting thin gruel. If we want a future workforce that is smart, creative, independent, and resourceful, we are not educating to get what we want.

JC: Perhaps the single greatest virtue of NCLB's approach to assessment and accountability is that it shines a bright light on student performance, as measured against explicit standards of proficiency. The nation finally knows which schools are raising proficiency in reading and math and which are not. Before NCLB, such information was spotty at best. A weakness, however, is that the bright light does not shine on all subjects that matter for kids and their future.

The education the nation values is one that is rich in content. NCLB has unwittingly and unfortunately encouraged schools to focus instruction inordinately on reading and math, the subjects that NCLB requires be tested annually and to which it has attached the tough accountability regime. Students, however, need also to understand science, history, geography, civics, and more if they are to succeed in a 21st-century world of intense international competition and technological sophistication.

NCLB already requires science testing once each in grades 3–5, 6–9, and 10–12. This requirement should be extended to include three tests of social science, defined as U.S. history, world history, geography, and civics. The law should further specify that the science and social science assessments be cumulative and comprehensive, and not focused just on the content taught during the tested grade level. NCLB should require that scores be posted on state and district web sites and included in school report cards. State scores should be benchmarked against NAEP, to encourage high standards. But science and social science should not be part of Adequate Yearly Progress (AYP); the process of assessing and exposing performance should be ample to promote attention to these fields.

Our students are not being prepared to compete with students from high-performing nations. Many are not getting an education based on a coherent, content-rich curriculum in history, geography, the arts, science, foreign languages, and literature.
—DR

EN: How should proficiency be defined and measured?

DR: The federal demand that all students will be proficient by 2014 has led states to embrace a very loose definition of proficiency. Most states are now using NAEP's "basic" achievement level as their definition of proficiency because NAEP's "proficient" level is far beyond their reach. But many states go even lower than NAEP basic for their definition of proficiency. Tennessee, for example, says that 90 percent of its 4th-grade students are proficient in reading, while NAEP says that only 26 percent are. Only 61 percent of students in Tennessee are at basic or above, according to NAEP. Similarly, North Carolina tells the public that 86 percent of its 4th graders are reading proficiently, but NAEP says only 28 percent are (and 36 percent score "below basic"). These states and many others make inflated claims to satisfy NCLB's ridiculous requirements.

JC: There is much room for improvement in how proficiency is defined and measured by NCLB—and we have practical suggestions for improving both. But the fundamental principles that NCLB advances represent a huge step forward for the nation.

Proficiency should capture the "common core" of competencies deemed necessary for all students to have a chance at success after high school. —*JC*

NCLB asks the nation to define what all students should know and be able to do in reading and math, and then measures progress toward these performance standards. This is a boldly democratic and egalitarian expectation and the very first time that the nation has asked its schools to perform at an explicit level. We should proudly defend these principles.

On a practical level, "proficiency" should describe the knowledge and skills necessary to be "college and career ready" in the 21st century. Proficiency should capture the "common core" of competencies deemed necessary for all students to have a chance at success after high school.

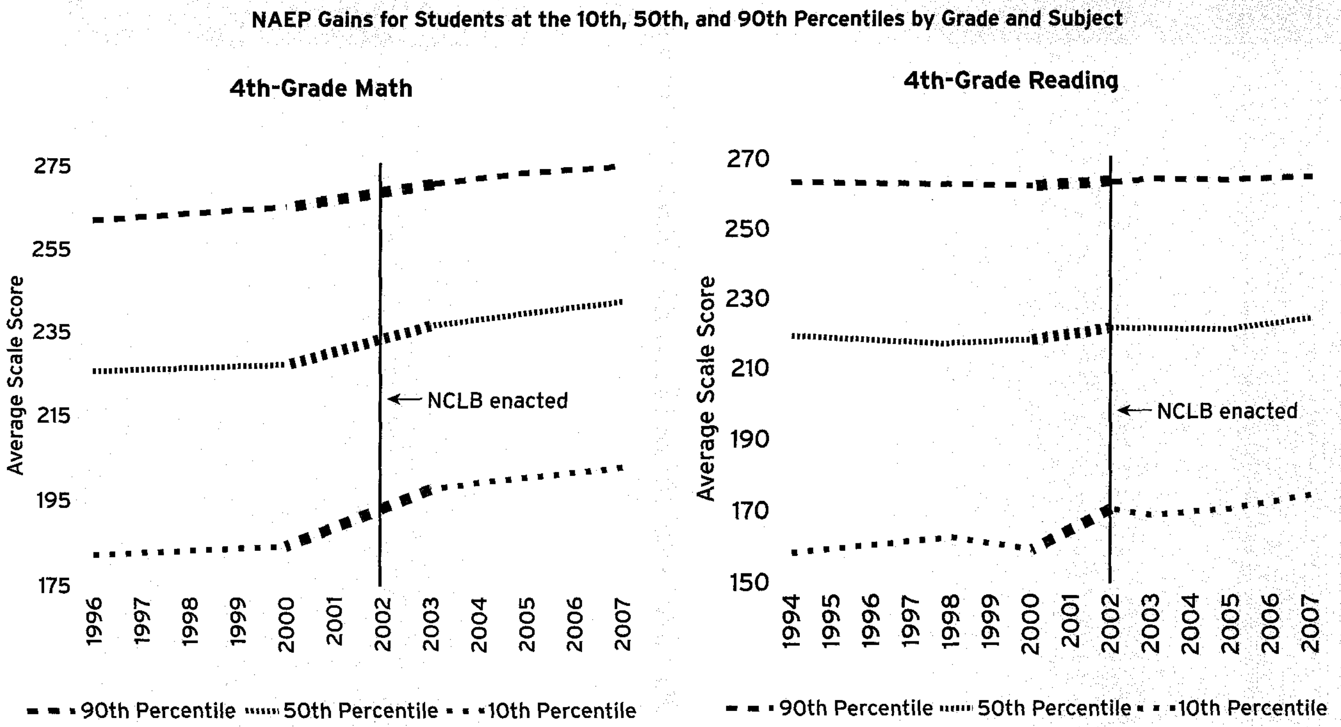
NCLB should authorize the U.S. Department of Education to fund—after a competitive bidding process—up to three multistate consortia to develop standards, tests, and performance levels that support the overarching goal of college and career readiness. With federal funding, states will buy into one of the systems of national standards and tests, saving the huge expense of developing new standards alone. NCLB could, through these recommendations, give the nation standards both achievable and worth achieving, while preserving the rights of the states to determine what "national" standards should be.

EN: Are the law's "remedy" provisions—including public school choice and supplemental educational services—working?

DR: The remedies the law prescribes—choice and tutoring—have proven to be ineffective. Less than 5 percent (and by some estimates, as low as 1 percent) of eligible

Is Credit Due? (Figure 1)

Because the 2002 enactment of No Child Left Behind followed the launch of accountability systems in many states, experts disagree as to achieving students and in scores posted prior to 2003, can be attributed to the law.



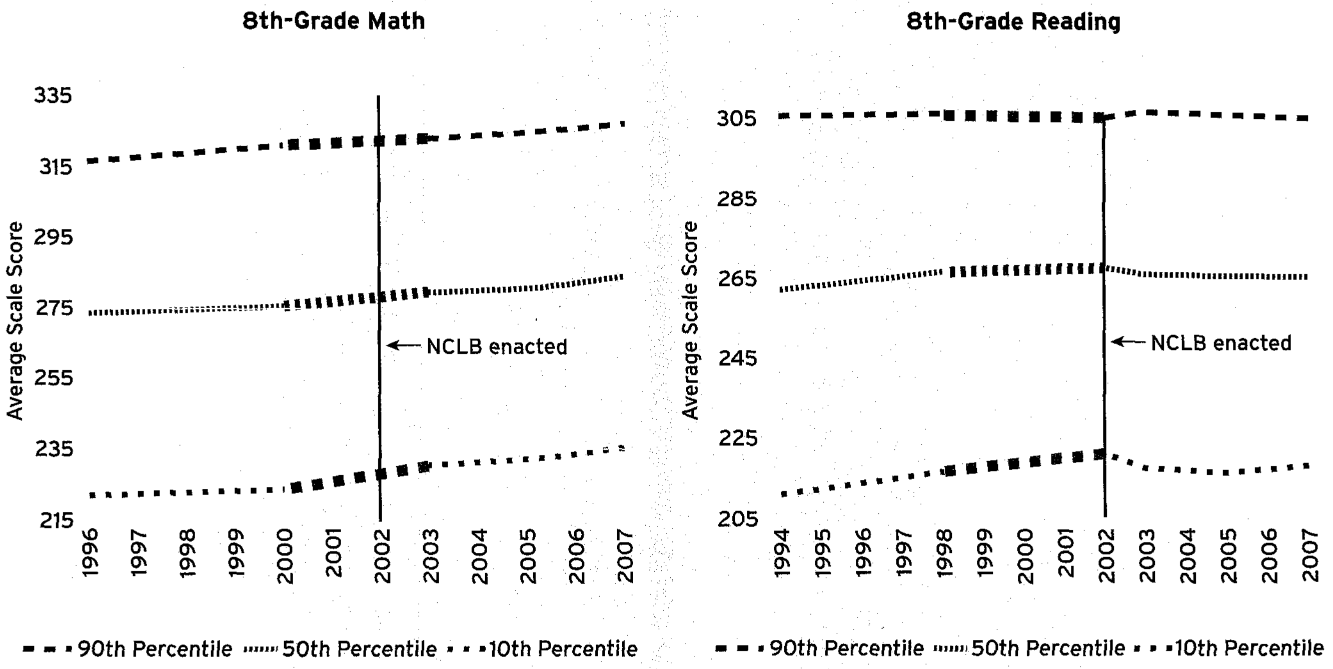
SOURCE: National Assessment of Educational Progress (NAEP) students choose to leave their "failing" school to transfer to a school that made AYP. Some say it is because the students and families did not get adequate notice, but more likely students are not choosing to leave for other reasons. In many suburban and rural school districts, there may be no other school to transfer to. But perhaps more important, most students will not leave their school even if there is another school that is presumably better, by NCLB's definition, and that is accessible. That is because most students are not in the group that is failing to make progress, and if they like their school, they don't want to be separated from their friends.

The law assumes that the schools are bubbling over with discontented kids who are eager to escape, but that assumption is probably wrong. Or at least there is no evidence for it based on the lack of response to the choice provisions of NCLB. We have long known from polling data that the public is concerned about the quality of American education, but most parents are satisfied with their own children's school. The failure of choice in NCLB reminds us of that consistent finding.

The other remedy in NCLB for failure to make AYP is tutoring, and that too has proved to be ineffective, though it has turned into a half-billion-dollar bonanza for tutoring companies. Evaluations in several states, including Maryland, Virginia, Tennessee, Alabama, Georgia, Michigan, and Kentucky, have reported that students who received tutoring did no better on state tests than their peers who did not receive tutoring. Only about 15 percent of eligible students have signed up for tutoring. Even when tutoring is free, conducted after school, and provided in a convenient location (sometimes in their own school building),

The law assumes that the schools are bubbling over with discontented kids who are eager to escape, but that assumption is probably wrong.
—DR

whether any of the improvements in scores on the National Assessment of Educational Progress (NAEP), and particularly among low-



most students don't want it. Maybe it conflicts with their afterschool jobs or their sports or other commitments. Maybe they just don't want to study for an additional hour or two when the school day is done. We need to know more about why 85 percent of eligible students avoid tutoring. We need to know why most eligible students are not showing up to be tutored, and why those who do show up are gaining so little from it.

Students in failing schools should also have greater access to tutoring, sooner. There is no more effective way to help students who are struggling than to get them extra, focused, individualized attention.
—JC

JC: We know from ample research that choice can boost the achievement of students who avail themselves of it. We also know that tutoring is an effective means of remediating achievement deficits. RAND recently affirmed the effectiveness of SES tutoring in a well-controlled study. But choice and tutoring are not working nearly as well as they could in NCLB. This has nothing to do with the ideas of choice and tutoring but rather with the way NCLB provides for them.

Students in failing schools simply do not have enough choices. The law currently limits choice to schools not in improvement status, which often eliminates all nearby options. NCLB should increase the choices available by permitting families to judge school shortcomings for themselves. A school failing a single subgroup or barely missing AYP, for example, might be a better choice for a student in a school that is failing badly. Yet today those choices are not available.

NCLB should offer additional charter school start-up grants in any school district where failure is rampant, such as a district not making AYP. Students should be able to choose schools in neighboring school districts, subject to district approval. And private schools should be eligible to receive choice students, provided those schools charge no extra tuition and participate in the state testing program.

Students in failing schools should also have greater access to tutoring, sooner. There is no more effective way to help students who are struggling than to get them extra, focused, individualized attention. Yet only 20 percent of students eligible for tutoring under NCLB are receiving services, and the services often fall short of the quality offered in the private marketplace. This should be remedied.

First, make Supplemental Educational Services (SES) available as soon as schools are declared in need of improvement, the same time as school choice is offered. Second, ensure that students have access to the best possible tutors. Grant districts the right to provide SES, even if the district is failing to make AYP, but also require districts to provide a fair and competitive marketplace for all providers. Whatever access the district itself has to families, students, and facilities, it must also provide to private tutors—or the district loses the right to be a provider. To reinforce these measures, NCLB should require states to provide information on eligible students to approved providers. The states should be required to collect and post comparative information on the effectiveness of all tutors.

EN: Are NCLB's sanctions for persistently failing schools effective? Are they fair?

DR: The law's punitive sanctions are ineffective. By year six of failing, the schools may be turned into charter schools, taken over by the state or private management, closed, or restructured (e.g., replacing the entire staff). None of these sanctions had a research basis to justify its inclusion in the law. They were hopes or hunches, based on ideology, not evidence. Most states and districts choose the least onerous of the sanctions, which is restructuring. According to a 2008 report from the Center on Education Policy, restructuring itself needs to be restructured because there is no sure-fire way to turn around a chronically low-performing school. The federal Institute of Education Sciences recently published a research summary on how to achieve this admirable goal, but not one of its four recommended strategies was supported by evidence.

JC: Currently, NCLB's escalating sanctions apply identically to schools that have failed massively and to schools that barely miss. This is a big mistake—but one that is easily fixed. NCLB should differentiate school improvement needs. Over time we expect more and more schools to succeed with the majority of their students, but to struggle with certain extra-needy subgroups. It is vital, as the nation expects increasing percentages of students to achieve proficiency, that we identify schools accurately for their performance. The Department of Education has approved nine states' requests to implement "differentiated accountability" plans. NCLB should build on this good work and institutionalize a simpler system for all states.

Schools should be placed into one of two categories of "needs improvement." "Limited" improvement is for schools whose shortcomings involve less than one-third of the student body. Limited improvement would offer students in year one of their school's acquiring improvement status (two years of missing AYP) choice of another school and SES. If schools remain in limited improvement status, NCLB would require, in year four of improvement, that states develop with schools "limited corrective action plans." Schools with limited improvement status should not face restructuring; states should have the flexibility to work with schools with limited problems as they see fit.

"Schoolwide" improvement is for schools that miss new AYP growth targets for all students or for subgroups that total more than one-third of school enrollment. Schoolwide improvement would require schools to proceed through restructuring, but NLCB should be revised to include only three means to restructure: First, a school may be reorganized as a charter school, giving it new governance. Second, the school's management can be contracted out to an independent school management company, changing day-to-day control of the school. Finally, a school may be closed and reopened with 100 percent of the teaching staff and administration replaced. Each of these measures ensures a new day for the school and its students.

EN: Is NCLB's goal of universal proficiency by 2014 one that should remain in a reauthorization of the law?

DR: The demand that all students be proficient by 2014 is absurd. This laudable goal has never been reached by any other nation or by any state. The only way it can be met is by defining "proficiency" to mean minimal literacy and numeracy. Meanwhile, the expectation that all schools will achieve this goal has created a trajectory of failure that guarantees a steady increase in the number of schools that are stigmatized for not making adequate yearly progress. In the 2007–08 school year, nearly 30,000 schools—or 35 percent of all public schools—joined that abysmal list; this was a 28 percent increase in the number of "failing" schools over the previous year. In Massachusetts, which has the highest-scoring students on NAEP in the United States, nearly half the public schools in the state were rated as being "in need of improvement."

It does not take a statistician to figure out that NCLB is a recipe for disaster for American public education. An article in *Science* magazine last fall predicted that nearly 100 percent of all elementary schools in California would be failing schools by 2014.

JC: Universal proficiency is perhaps the most important principle of NCLB—certainly the most audaciously democratic one. It should and will be preserved. Who, after all, will be willing to say whose children should be proficient and whose should not? And, this is not just a matter of principle—the goal is doable.

But the states need to come together around standards that are worth accomplishing, that represent the common core of knowledge and skills that every child needs to be prepared in the 21st century for college or a productive career. Students with special needs or just beginning to learn English need to be provided alternative means to demonstrate proficiency. Universal proficiency in practice may mean 90 to 95 percent proficient, a high number but not an unattainable one. Finally, schools must be given time to realize goals worth achieving.

NCLB should extend the 2014 deadline for universal proficiency by six years—half the original NCLB timeline—to 2020, but only for states willing to adopt new high national standards.

The demand that all students be proficient by 2014 is absurd. This laudable goal has never been reached by any other nation or by any state. The only way it can be met is by defining "proficiency" to mean minimal literacy and numeracy. —DR

EN: Has the federal leadership embodied in NCLB been a help or a hindrance to school improvement?

DR: Washington does not have the institutional knowledge or capacity to reform our nation's schools. Congress is not the right institution to reform the nation's schools. The U.S. Department of Education lacks the capacity to tell the nation's schools what they should do to improve. Washington is too remote from schools to take responsibility for improving them. In their edited volume, *No Remedy Left Behind*, Chester E. Finn Jr. and Frederick Hess wrote that NCLB "amounts to a civil rights manifesto dressed up as an accountability system. This provides an untenable basis for serious reform, rather as if Congress declared that every last molecule of water or air pollution would vanish by 2014, or that all American cities would be crime-free by that date.... NCLB's dogmatic aspirations and fractured design are producing a compliance-driven regimen that recreates the very pathologies it was intended to solve. It's time to relearn the lessons of the Great Society, when ambitious programs designed to promote justice and opportunity were undone by utopian formulations, unworkable implementation structures, and a stubborn unwillingness to acknowledge the limits of federal action in the American system. In the end, Washington is not well-positioned to effect change to a program that depends on state and local action, or successfully to require states and districts to adopt measures whose efficacy hinges on gusto and creativity rather than compliance."

A few tweaks here and a little tinkering there cannot fix this fundamentally flawed legislation. The time has come to discard it altogether and begin to think afresh about how the federal government can provide useful assistance to states, districts, and schools that are trying to improve. What we need is a clear recognition of the appropriate federal role in education and a deeper understanding of the meaning of a good education. Perhaps with a sense of the limits of federalism and of the limitless potential of education, we might be able to free ourselves from the sterility, rigidity, dogmatism, and narrow anti-intellectualism of NCLB.

JC: NCLB embodies a delicate balance between federal leadership and state execution. Despite the hue and cry from critics about federal over-reaching, NCLB provides ample discretion to the states. The role that NCLB sets out for the federal government—setting national goals while leaving states and districts to decide how to reach them—is sound, and surely superior to the hodge-podge of state accountability systems that preceded it. The challenge now is to improve how our federal-state partnership works. Experience can be a powerful guide.

Let's face facts. The nation needs to boost its achievement even more now than when the law was passed. Our economic welfare depends more and more on education. We should learn from the law—as it is beginning to help our children learn—and not expect 50 uncoordinated states to get the nation where it needs to be in the demanding world of the 21st century.

What, in addition to what we have already suggested, would improve the federal-state partnership? A practical remedy on which all sides now agree: change how the law measures academic progress. NCLB currently recognizes achievement only when it lands a student above a state's proficiency bar. The act does not recognize student progress by the lowest achievers, growing from, say, below basic to basic. The act also fails to recognize the growth of the nation's top students: a school gets zero credit toward AYP for upper-end success. The Department of Education has approved 15 states' requests to use "growth models" to measure achievement. NCLB should be revised to make growth the only measure of achievement. The act should require that each student's achievement be judged, for purposes of determining AYP, against one simple standard: is the student on track to be proficient or better by the time of her last reading and math tests in high school? Those tests must be passed for high-school diplomas to be awarded. ❖

The role that NCLB sets out for the federal government—setting national goals while leaving states and districts to decide how to reach them—is sound, and surely superior to the hodge-podge of state accountability systems that preceded it.
—JC

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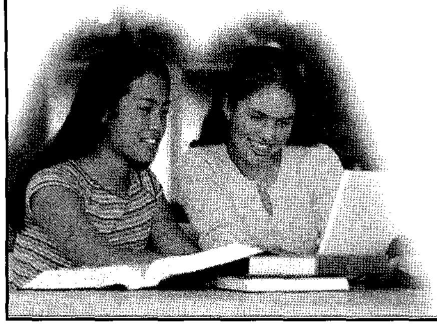

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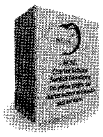

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Domino Effect

Domestic violence harms everyone's kids

Each year, between 10 and 20 percent of schoolchildren in the United States are exposed to domestic violence. According to psychologists, such exposure can lead to aggressive behavior, decreased social competence, and diminished academic performance. A majority of parents and school officials believe that children who are troubled, whatever the cause, not only demonstrate poor academic performance and inappropriate behavior in school, but also adversely affect the learning opportunities for other children in the classroom. A nationally representative survey by Public Agenda found that 85 percent of teachers and 73 percent of parents agreed that the "school experience of most students suffers at the expense of a few chronic offenders."

Understanding whether troubled children in fact generate spillover effects in school is important for two reasons. First, the existence of substantial spillovers caused by family problems such as domestic violence would provide an additional compelling reason for policymakers to find ways to help troubled families. Second, because many education policies change the composition of school and classroom peer groups, it is important to understand how such changes may affect student achievement. For example, a common concern regarding the ongoing push to "mainstream" emotionally disturbed students in regular classroom settings is that doing so may undermine the performance of other students. Similarly, the tracking of students into classrooms based on ability or academic performance may group disadvantaged children with the most disruptive students. The validity of these concerns hinges on whether and how classroom exposure to troubled peers affects student achievement and behavior.

Credibly measuring negative spillovers caused by troubled children has been difficult. Most data sets do not allow researchers to identify troubled children. Even when such students are identified in the data, it is

By SCOTT E. CARRELL and MARK L. HOEKSTRA

ILLUSTRATION / JOHN WEBER

difficult to determine if a disruptive child causes his classmates to misbehave or if his classmates cause him to be disruptive, what scholars of peer effects call the "reflection problem." In addition, troubled children are likely to attend the same schools as other disadvantaged children. One must rule out the possibility that the disruptive student and his classmates misbehave due to some common unobserved factor.

We overcome these problems in this study by utilizing a unique data set in which information on students' academic achievement and behavior is linked to domestic violence cases filed by their parents. This data set allows us to identify troubled children more precisely than we could by using conventional demographic measures. Moreover, we can identify children who are troubled for specific family reasons and not because of their peer group. This allows us to measure peer effects free from the reflection problem, providing a rare opportunity to test the notion that even one "bad apple" impedes the learning of all other students.

Our results confirm, first, that children from troubled families, as measured by family domestic violence, perform considerably worse on standardized reading and mathematics tests and are much more likely to commit disciplinary infractions and be suspended than other students. We find also that an increase in the number of children from troubled families reduces peer student math and reading test scores and increases peer disciplinary infractions and suspensions. The effects on academic achievement are greatest for students from higher-income families, while the effects on behavior are more pronounced on students who are less well-off. The results of our analysis provide evidence that, in many cases, a single disruptive student can indeed influence the academic progress made by an entire classroom of students.

This data set provides us with a rare opportunity to test the notion that even one "bad apple" impedes the learning of other students.

Data

In our study, we use a confidential student-level data set provided by the school board of Alachua County in Florida. This data set consists of observations of students in the 3rd through 5th grades from 22 public elementary schools for the academic years 1995–96 through 2002–03. The Alachua County school district is large relative to school districts nationwide, with roughly 30,000 students; in the 1999–00 school year, it was the 192nd largest among the nearly 15,000 districts nationwide. The student population in our sample is approximately 55 percent white, 38 percent black, 3.5 percent Hispanic, 2.5 percent Asian, and 1 percent mixed race. Fifty-three percent of students were eligible for the federal free or reduced-price lunch program.

The test-score data consist of reading and mathematics scores from the Iowa Test of Basic Skills and the Stanford 9, both nationally normed exams. Reported scores indicate the percentile ranking on the national test relative to all test-takers nationwide. Because the reading and math results are so similar, we use a composite score calculated by taking the average of the math and reading scores. The average student in our data scored at the 53rd percentile, or just above the national norm.

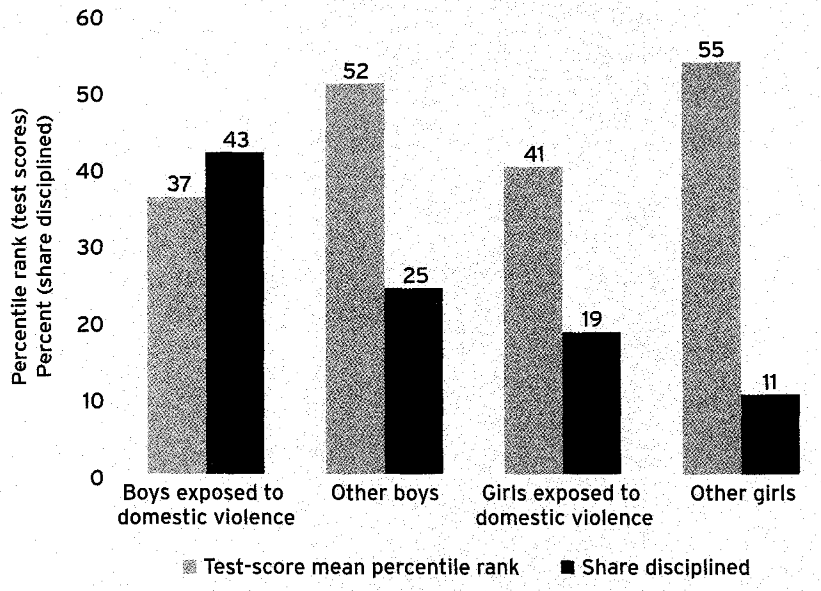
Yearly disciplinary records, which include incident type and date, are available for every student in our sample. Incidents are reported in the system if they are serious enough to require intervention by the principal or another administrator. We focus on three behavioral outcomes from these records: the probability the student was involved in a disciplinary incident, the total number of disciplinary incidents per student, and the probability the student was suspended. In a typical year, 18 percent of the students in our data set were involved in a disciplinary incident, the average student was involved in 0.56 incidents, and 9 percent of students were suspended.

We gathered domestic violence data from public records information at the Alachua County courthouse, which included the date filed and the names and addresses of individuals involved in domestic violence cases filed in civil court in Alachua County between January 1, 1993, and March 12, 2003. Cases are initiated when one family member (typically the mother) petitions the court for a temporary injunction for protection against another member of the family (most often the father or boyfriend). Students were linked to cases in which the petitioner's first and last name and the first three digits of the residential address matched the parent name and student's residential address in the annual school record. In that way, we were able to identify the set of students who could be matched to a domestic violence case from 1993 to 2003. In total, 4.6 percent of the children in our data set were linked to a domestic violence case filed by a parent, split equally between boys and girls. Sixty-one percent of these children were black, while 85 percent were eligible for subsidized school lunches.

Students linked to a domestic violence case performed at lower levels academically and were more likely to have been involved in a disciplinary incident than other students in the district. Boys exposed to domestic violence, for example, performed at the 37th percentile academically, as compared with the 52nd percentile for boys who were not exposed. Forty-three percent of boys exposed to domestic violence were involved in a disciplinary incident, as compared with 25 percent of boys who were not exposed. Girls exposed to domestic violence performed at the 41st percentile academically and 19 percent of them were involved in a disciplinary incident, as compared with the 55th percentile and 11 percent for girls who were not exposed to domestic violence (see Figure 1).

Double Trouble (Figure 1)

Students exposed to domestic violence do less well on standardized tests and are more likely to misbehave in school than their peers.



SOURCE: Authors' calculations

Measuring Peer Effects

Our main analysis examines the impact of troubled children on their peers. We assume there is no feedback loop in which a student's peers *cause* the domestic violence in the household. This assumption appears reasonable, as none of the most likely determinants of domestic violence can plausibly be caused by an elementary school child or her peers.

To overcome the bias that results from self-selection into peer groups, our main analysis compares cohorts of students in the same grade at the same school in different years. For example, we compare the 3rd graders in a given school this year with the 3rd graders in the same school last year to see whether the cohort with more students exposed to domestic violence had higher or lower student achievement. Restricting the comparisons to students attending the same school ensures that any effects we observe reflect the impact of troubled students and not the fact that schools with more such students differ in unobserved ways from other schools. We measure peer domestic violence at the cohort level (that is, across all students in a grade at a school) as opposed to the classroom level due to the possible sorting of students into classrooms according to their achievement and behavior. We also adjust for differences among students in a large set of individual characteristics—most importantly whether particular students had been directly exposed to domestic violence—but also race, gender, subsidized lunch status, and median zip code income.

Results

Our results indicate that troubled students have a statistically significant negative effect on their peers' reading and math test scores. Adding one troubled student to a classroom of 20 students results in a decrease in student reading and math test scores of more than two-thirds of a percentile point (2 to 3 percent of a standard deviation). The addition of a troubled peer also significantly increases misbehavior of other students in the classroom, in effect causing them to commit 0.09 more infractions than they otherwise would, a 16 percent increase. These are effects that could accumulate over time if the same students are repeatedly exposed to troubled peers.

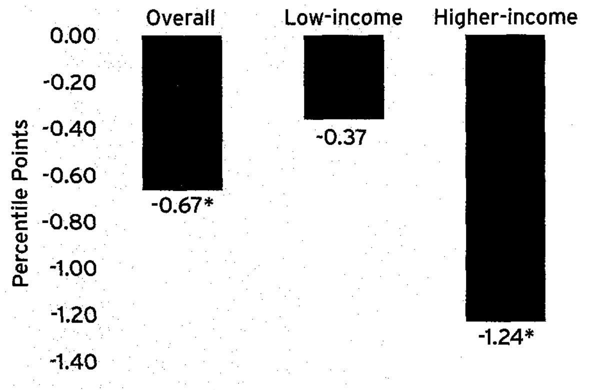
These average effects also mask a few interesting differences across student groups. We find that troubled peers have a large and statistically significant negative effect on higher-income children's math and reading achievement, but only a small and statistically insignificant effect on the achievement of low-income children. However, we find the opposite pattern for disciplinary outcomes. The presence of troubled peers significantly increases the misbehavior of low-income children, but does not increase the disciplinary problems of higher-income children (see Figure 2).

Results of examining the differential effects of peers from troubled families by race and gender show relatively large negative and statistically significant test-score effects on white boys

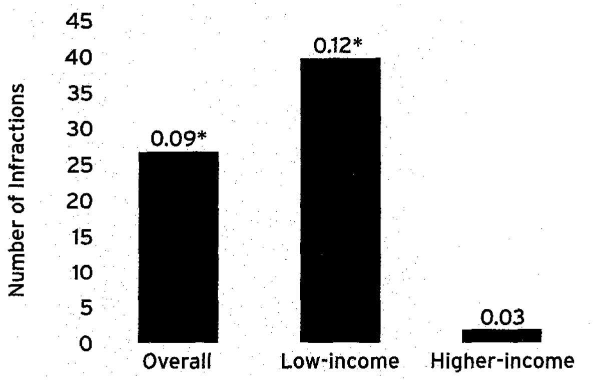
Income Matters (Figure 2)

The presence of troubled peers in school lowered achievement and increased behavioral problems among students as a whole. For students from low-income families, these effects were concentrated on behavior rather than on achievement, while the opposite was true for children from higher-income families.

Effect on Test Scores



Effect on Disciplinary Infractions



Note: The bars in both charts represent the causal effect of adding one troubled student to a classroom of 20 students. * indicates that the effect is statistically significant at the 5 percent level or greater.

SOURCE: Authors' calculations

and statistically insignificant effects on black boys, black girls, and white girls. Adding one troubled peer to a classroom of 20 students reduces white boys' reading and math scores by 1.6 percentile points and black boys' reading and math scores by 0.9 percentile points (the effects on girls are negligible). Troubled peers increase disciplinary problems for all subgroups except for white girls. The effects are largest for black girls. One troubled peer added to a classroom of 20 students increases the probability that a black girl commits a disciplinary infraction by 2.2 percentage points (an increase of 10 percent over what would otherwise be the case).

Finally, we examined whether troubled boys affect their peers differently than do troubled girls. Across all outcome variables, both academic and behavioral, the negative peer effects appear to be driven primarily by the troubled boys, and these effects are largest on other boys in the classroom. The results indicate that adding one troubled boy to a classroom of 20 students decreases boys' test scores by nearly 2 percentile points (7 percent of a standard deviation) and increases the probability that a boy will commit a disciplinary infraction by 4.4 percentile points (17 percent). Apparently, troubled boys generate the strongest adverse peer effects, and other boys are most sensitive to their influence.

Testing Key Assumptions

Of critical importance to our method is the assumption that students are not systematically placed into or pulled out of a particular grade cohort within a school depending on the domestic violence status of the student or his peers. For example, if parents who really value education were more likely to pull their children out of a cohort with a particularly high proportion of peers from troubled families, such nonrandom selection would cause us to erroneously attribute lower performance to the presence of the troubled peers.

We performed several additional analyses to probe the robustness of our results to this critical assumption. As a first test for nonrandom selection of students into or out of particular schools and cohorts of students, we examined whether peer family violence appears to have an effect on cohort size or student characteristics such as race, gender, and income. In the absence of nonrandom selection, we expect to find no correlation between these characteristics and the peer family violence variables. This is indeed what we find.

Next, we noted that some parents may be more likely than others to put their children in private schools or move to a different school zone because of a particularly bad cohort, but that parents may be less likely to pull one child out of the school due to a particularly bad cohort when that child has a sibling in the same school. When we calculated peer effects only on children with siblings in the school, the results were essentially the same as those for the full sample.

One might also be concerned that some families are, for some reason, unable to remove their children from cohorts with a large number of troubled peers. To check this potential cause of nonrandom selection, we calculated results based only on comparing students to their siblings. We found that the sibling in the cohort with more children from troubled families has lower test scores and more disciplinary problems. These within-family results are roughly two-thirds the size of the estimates for the full sample, but the differences between the two sets of results are not statistically significant.

For a final check, we added controls for a full set of cohort-level variables, including race, gender, participation in the federal subsidized lunch program, and median zip code income. These variables control for any potential changes in cohort characteristics not captured by our full set of individual controls in the main analysis. In addition, this allows us to examine whether the presence of children exposed to domestic violence is merely a proxy for other peer characteristics, such as family income. The results indicate that the negative peer effects are not likely driven by observable factors, such as family income, that are correlated with domestic violence.

Collectively, these tests provide strong evidence that our findings are not the result of families changing schools in response to the number of children from troubled families in their child's grade at an assigned school.

Our findings have important implications for both education and social policy. They provide strong evidence of the validity of the "bad apple" peer effects model.

Discussion

In addition to knowing how children from troubled homes affect their peers through interaction with their cohort at school, one may also wish to know the precise way in which the troubled families cause the peer effects. This is a particularly challenging task given that researchers have consistently found, as we have, that domestic violence is correlated with other negative family characteristics, such as poverty, unemployment, low levels of education, and substance abuse. While we cannot conclusively attribute the effects found to the causal effect of domestic violence per se, we can exploit the timing of the domestic violence filings to provide suggestive evidence of whether the negative spillovers are due to domestic violence or some other factor correlated with it.

Specifically, we examine whether the negative spillovers associated with children from troubled families are smaller *after* the parent files the case than *before* the case is filed. Survey research shows that on average, violence had occurred in the family for more than four years prior to the reporting of the incident. However, 87 percent of the respondents indicated that the reporting of the incident "helped stop physical abuse." Consequently, if domestic violence itself is causing the negative spillovers on the child's classmates, then we would expect the spillovers to be smaller when the parent of the peer had already filed for the injunction against domestic violence.

To investigate whether exposure to domestic violence is the potential mechanism through which the spillovers occur, we constructed two peer domestic violence variables: reported and as yet unreported violence. By definition, reported domestic violence means that the petition for the injunction was filed before the student test was taken and unreported domestic violence signals that the filing occurred after the test date.

We find substantially larger effects for the proportion of peers with unreported domestic violence (that is, those whose parents had not yet filed for the injunction) than for those with past domestic violence. For example, the test-score effects for troubled boy peers on boys are statistically insignificant for reported violence, while they are large and highly significant for unreported violence. The larger peer effects for unreported domestic violence suggest that the violence in the home may itself be playing a role in driving the effects. However, we remain cautious with this interpretation, as we have no direct information regarding the details of the family environments for students in our sample.

Conclusion

Our findings have important implications for both education and social policy. First, they provide strong evidence of the validity of the "bad apple" peer effects model, which hypothesizes that a single disruptive student can negatively affect the outcomes for all other students in the classroom. Second, our results suggest that policies that change a child's exposure to classmates from troubled families will have important consequences for his educational outcomes. Finally, our results provide a more complete accounting of the social cost of family conflict. Any policies or interventions that help improve the family environment of the most troubled students may have larger benefits than previously anticipated.

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Can Tracking

EVIDENCE FROM KENYA

Tracking students into different classrooms according to their prior academic performance is controversial among both scholars and policymakers. If teachers find it easier to teach a homogeneous group of students, tracking could enhance school effectiveness and raise test scores of both low- and high-ability students. But if students benefit from learning with higher-achieving peers, tracking could disadvantage lower-achieving students, thereby exacerbating inequality.

Debates over tracking reached their high point in the United States in the 1990s. An influential report published in 1998 by the Thomas B. Fordham Foundation argued that the available research did not support the contention that tracking doomed impoverished students to inferior schooling, nor did it support universal adoption of the practice. Over the last decade, patterns in grouping students have changed markedly in the U.S.; high school students are no longer placed in rigidly defined general-education or noncollege tracks but have the flexibility to move between course levels for different subjects. These changes may have assuaged some critics, but the broader debate over tracking remains unsettled.

The central challenge in measuring the effect of tracking on performance is that schools that track students may be different in many respects from schools that do not. For example, they may attract a different pool of students and possibly a different pool of teachers. The ideal situation to assess the impact of tracking on test scores of different groups of students would be one in which students were assigned to tracking or nontracking schools randomly, and the performance of students could be compared across school types.

Improve Learning?

ILLUSTRATION / RAFAEL LOPEZ

By

ESTHER DUFLO,

PASCALINE DUPAS,

and

MICHAEL KREMER

We shed light on these issues using data from Kenya. In 2005, each of 140 primary schools in western Kenya received funds from the nongovernmental organization International Child Support (ICS) Africa to hire an extra teacher. One hundred twenty-one of these schools had a single 1st-grade class and used the new teacher to split the students into two classes. In 61 randomly selected schools, students were assigned to classes based on prior achievement as measured by test scores. In the remaining 60 schools, students were randomly assigned to one of the two classes, without regard to their prior academic performance.

The results showed that all students benefited from tracking, including those who started out with low, average, and high achievement. At the tracking schools, the test scores of students who started out in the middle of their class do not seem to be affected by which section (top or bottom) the students were later assigned to. In other words, any negative effects of being with lower-achieving peers were more than offset in tracked settings by the benefit of the teacher being able to better tailor instruction to students' needs.

Primary Education in Kenya

The Kenyan education system includes eight years of primary school and four years of secondary school. Like many other developing countries, Kenya has recently made rapid progress toward the goal of universal primary education. After the elimination of school fees in 2003, primary school enrollment rose nearly 30 percent, from 5.9 million in 2002 to 7.6 million in 2005. This is typical of what is happening in sub-Saharan Africa overall, where the number of new entrants to primary school increased by more than 30 percent between 1999 and 2004.

This progress creates its own new challenges, however. Pupil-teacher ratios have grown dramatically, particularly in lower grades. In our sample of schools in western Kenya, the median 1st-grade class in 2005 (after the introduction of free primary education, but before the class-size-reduction program we study here) had 74 students and the average class size was 83. These classes are heterogeneous in a number of ways: Students differ vastly in age, school readiness, and support at home. Many of the new students are first-generation learners and have not attended preschools, which are neither free nor compulsory in Kenya. These challenges are not unique to Kenya; they confront many developing countries where school enrollment has risen sharply in recent years. Understanding the roles of tracking and peer effects in this type of environment is thus critically important.

Our results are most likely to be directly applicable to settings where classes are large, the student population is heterogeneous, and few additional resources are available to teachers. It is unclear whether similar results would be obtained in different contexts, such as developed countries, where smaller class sizes may allow more tailored instruction even without tracking, and extra resources, such as remedial education, computer-assisted learning, and special education programs, may already provide tools to help teachers deal with different types of students.

Design of the Experiment

This study takes advantage of a class-size-reduction program and evaluation that involved primary schools in Bungoma and Butere-Mumias in Western Province, Kenya. Of 210 primary schools in these districts, 140 schools were randomly selected to participate in the Extra-Teacher Program. With funding from the World Bank, ICS Africa provided each of the 140 selected schools with funds to hire an additional 1st-grade teacher on a contractual basis starting in May 2005, the beginning of the second term of that school year. Most of the schools (121) had only one 1st-grade class, which was split into two classes when the new teacher was hired. The 19 schools that already had two or more 1st-grade classes added another class.

It is important to note that the incentives facing the newly hired teachers differed from those facing civil-service teachers already working in program schools. The new teachers had clear incentives to work hard to increase their chances of having their short-term contracts renewed and of eventually being hired as civil-service teachers—a desirable outcome in a society where government jobs are highly valued. In contrast, the difficulty of firing civil-service teachers implies that they had weak extrinsic incentives and may be more sensitive to factors affecting their intrinsic motivation.

Average class size was reduced from 84 to 46 students in the 140 schools that received funds for a new teacher. The program continued for 18 months, which included the last two terms of 2005 and the entire 2006 school year, and the same cohort of students remained enrolled in the program.

From the 121 schools that had originally only one 1st-grade class, 60 schools were randomly selected to assign students to one of the two classes by chance. We call these schools the "nontracking schools." In the remaining 61 schools (the "tracking schools"), the children were divided into two sections according to their scores on exams administered by the school during the first term of the 2005 school year. The 50 percent of the class with the lowest exam scores were assigned to one section (the "bottom class") and the rest were assigned to the other (the "top class").

After students were assigned to classes, the contract teacher and the civil-service teacher were also randomly assigned to classes. In the second year of the program, all children not repeating the grade remained assigned to the same group of peers and the same teacher.

Data

Our initial sample consists of approximately 10,000 students enrolled in 1st grade in March 2005 in one of the 121 primary schools participating in the study. The outcome of interest is student academic achievement, as measured by scores on a standardized math and language test first administered in all schools 18 months after the start of the program. Trained proctors administered the test, which was then graded blindly by data processors. In each school, 60 students (30 per class) were drawn from the initial sample to participate in the tests. If a class had more than 30 students, students were randomly sampled.

The test was designed by a cognitive psychologist to measure a range of skills students may master by the end of 2nd grade. One part of the test was written and the other part oral, administered one-on-one. Students answered math and literacy questions ranging from counting and identifying letters to subtracting three-digit numbers and reading and understanding sentences.

To limit attrition from the experiment, proctors were instructed to go to the homes of sampled students who had dropped out or were absent on the day of the test and to bring them to school for the test. It was not always possible to find the child, however, and the resulting attrition rate on the test was 18 percent. However, there was no difference between tracking and nontracking schools in overall attrition rates. In total, we have postintervention test-score data for 5,796 students.

In addition, each school received unannounced visits several times during the course of the study. During these visits enumerators checked, upon arrival, whether teachers were present in school and whether they were in class and teaching, and then took a roll call of the students.

The persistence of the benefits of tracking is striking, as many evaluations find that the test-score effects of successful interventions fade over time. It seems that tracking helped students master core skills in 1st and 2nd grade that in turn helped improve their learning later on.

To measure whether the effects of the program persisted, the children who had been sampled for the first postintervention test were tested again in November 2007, one year after the program ended. During the 2007 school year, these students were overwhelmingly enrolled in grades for which their school had a single class, so tracking was no longer an option. Most of these students had reached 3rd grade by that time, but those repeating an earlier grade were also tested. The attrition rate for this portion of the experiment was 22 percent. Neither the proportion nor the characteristics of children who could not be tested differed between the tracking and nontracking schools.

The Impact of Tracking

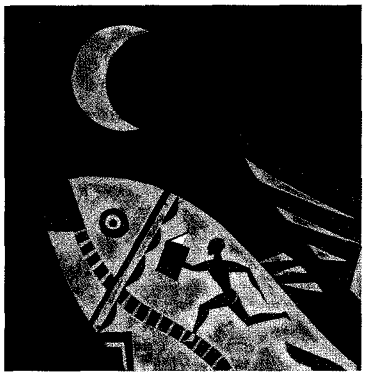
We estimate the impact of tracking on student achievement by comparing the postintervention (18 months after the experiment began) test scores of students in the tracking and nontracking schools. Taking the average of students' scores on math and literacy exams, we find that students in tracking schools scored 0.14 standard deviations higher than students in nontracking schools overall. When we adjust the comparison to take into account minor differences in student characteristics across the two groups of schools, the effect increases to 0.18 standard deviations. There was no significant difference between the impact of the program on math and literacy scores when we examined the subjects separately.

How large were these effects? A typical student with a literacy score one standard deviation above that of the average student could correctly spell 5.5 of 10 words included on the exam, while the average student could spell only two. Similarly, students with a math score one standard deviation above the average were able to perform single-digit multiplications, whereas those at the mean could not. The average effect of tracking was roughly one-fifth the size of these performance differences.

These gains persisted beyond the duration of the program (see Figure 1). When the program ended, most students had reached 3rd grade, and all but five schools had only one 3rd-grade class. The remaining students had repeated and were in 2nd grade where, once again, most schools had only one large class, since after the program ended they did not have funds for additional teachers. Even so, the test scores of students in tracking schools remained 0.16 standard deviations higher than those of students in nontracking schools overall (and 0.18 standard deviations higher with control variables). The persistence of the benefits of tracking is striking, as many evaluations find that the test-score effects of successful interventions fade over time. It seems that tracking helped students master core skills in 1st and 2nd grade that in turn helped improve their learning later on.

We also examine whether the effect of tracking differs between initially high-scoring students (who are grouped with other strong students in tracking schools) and initially low-scoring students (who are grouped with other low-scoring students in tracking schools). We find that both groups of students benefited from tracking, and by approximately the same amount. A year after the intervention ended, the effect persisted for both the top and bottom classes.

Tracking increases test scores for students taught by contract teachers. In fact, students initially scoring low who were assigned to contract teachers benefited even more from tracking than students who initially scored high. But students who initially scored low showed only a small and statistically insignificant benefit if assigned to a civil-service teacher. In contrast, tracking substantially increased scores for students who initially scored high and were assigned to a civil-service teacher. Below we discuss other evidence that tracking led civil-service teachers to increase effort when they were assigned to high-scoring students but not when assigned to low-scoring students.



When we compare students around the cutoff at the tracking schools with students of similar ability at the nontracking schools, we find that students at the tracking schools score higher at the end of the intervention than the comparable students in the nontracking schools.

Changes in Peer Achievement

Data from the tracking schools allow us to estimate the effect of being taught with a higher-achieving vs. lower-achieving peer group by comparing students with baseline test scores in the middle of the distribution. Because of the way tracking was done (splitting the grade into two classes at the median baseline test score), the two students closest to the median within each school were assigned to classes where the average prior achievement of their classmates was very different.

By comparing pairs of students right around the cutoff, we can estimate the effect of being the lowest-achieving child in the class compared to being the highest-achieving student in the class. We find that, despite the large gap in average peer achievement (1.6 standard deviations in baseline test scores) between the top and bottom classes, the students just below the cutoff have postintervention test scores similar to students just above the cutoff. Moreover, when we compare students around the cutoff at the tracking schools with students of similar ability at the nontracking schools, we find that students at the tracking schools score higher at the end of the intervention than the comparable students in the nontracking schools. These results imply that being the best student in a class of relatively weak students and being the worst student in a class of relatively strong students are both better than being the middle student in a heterogeneous class. This evidence suggests that students benefit from homogeneity because the teacher does not need to spend time addressing the needs of students performing at widely varying levels.

Learning from Peers vs. Learning from Teachers

We took a separate look at students in schools where students were not tracked but instead assigned to classes randomly. The random assignment of students and teachers within these schools made it possible to see whether and how peer achievement affected the performance of individual students when education took place in an untracked setting. We found that it did. If peer achievement was higher—0.10 standard deviations higher, to be exact—students learned 0.04 standard deviations more than they would have otherwise.

These results, taken together with those reported earlier, indicate that peer influence depends on whether or not classes are tracked. In untracked classes, where there is considerable heterogeneity of performance, students learn less if their peers are lower performing. At least in this particular setting, however, the homogeneous classes that are created by tracking seem to allow the teacher to deliver instruction at a level that reaches all students, thus offsetting the effect of having lower-performing peers. Interestingly, combining the direct effect of peer achievement with the fact that the median children in each school did not suffer from being assigned to the bottom track suggests that teachers focus their attention not on the median student in the class, but at students considerably above the median.

Why Did Tracking Work?

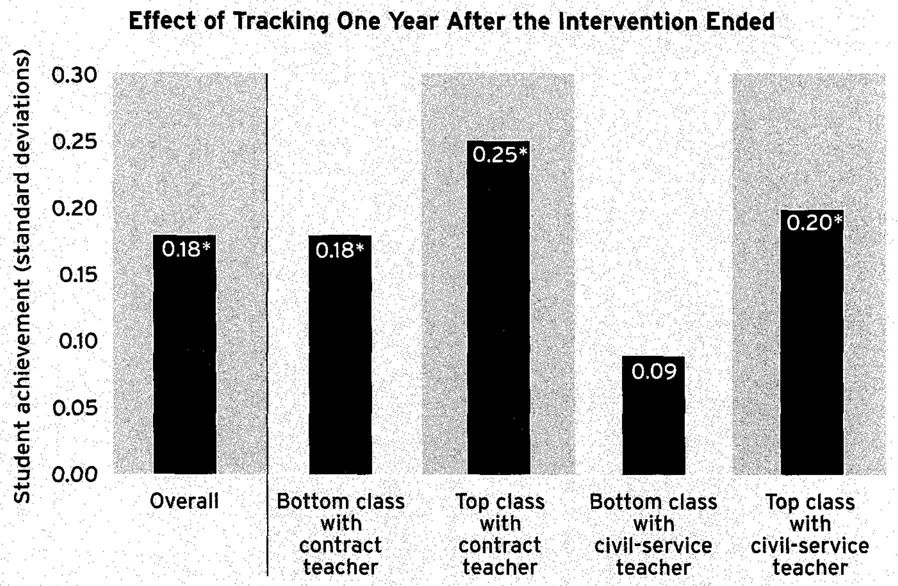
Two additional pieces of evidence shed light on the question of why tracking had such clear benefits. First, we look at teacher presence and effort. Do they spend more time in class and teaching? Then, we examine whether the test-score gains in tracking schools were concentrated among simpler or more complex tasks and whether this varied by students' initial achievement levels. Our results confirm that students in tracked classes seem to have benefited from more-focused teaching and perhaps also from greater teacher effort.

Teacher absence is a major problem in Kenya, as in many developing countries. Only 59 percent of teachers were in class and teaching during unannounced visits to a comparable sample of schools that did not receive an additional teacher. Overall, teachers in tracking schools were 9.6 percentage points more likely to be found in school and teaching during random spot checks than their counterparts in nontracking schools, who were present and teaching only about half of the time. There were, however, large differences across teachers. The contract teachers were much more likely to be found in school and teaching (74 percent versus 45 percent for the civil-service teachers), and their absence rate was unaffected by tracking (see Figure 2). The civil-service teachers were 10 percentage points more likely to be in schools and teaching in tracking schools than in nontracking schools when they were assigned to the top class. This difference is statistically significant and amounts to a 25 percent increase in teaching time. However, the difference between tracking and nontracking school types was smaller and statistically insignificant for civil-service teachers assigned to the bottom classes.

These results suggest that teachers may be more motivated to teach a group of students with high initial scores than a group with low initial scores or a heterogeneous group.

Tracking Gains (Figure 1)

The benefits of tracking persisted even one year after the intervention ended and students returned to regular classrooms. Among students assigned to civil-service teachers, the gains from tracking were statistically significant only for students who had been assigned to the top class.



Note: * indicates that the effect is statistically significant at the 10 percent level. All effects are measured relative to students in nontracking schools.

SOURCE: Authors' calculations

Recall that students assigned to the top class with a civil-service teacher benefited more from tracking than those assigned to the bottom class with a civil-service teacher. Increased teacher effort may help explain this pattern.

Another hypothesis consistent with both the tracking results and the effects from random peer assignment is that tracking by initial achievement improves student learning because it allows teachers to focus instruction. Teaching a more homogeneous group of students might allow teachers to adjust the material covered and the pace of instruction to students' needs. For example, a teacher might begin with more basic material and instruct at a slower pace, providing more repetition and reinforcement, when students are initially less prepared. With a group of initially higher-achieving students, the teacher can increase the complexity of the tasks and pupils can learn at a faster pace. With a heterogeneous group, they may be compelled to cover both simple and advanced material, spending less time on each, which would hurt all students.

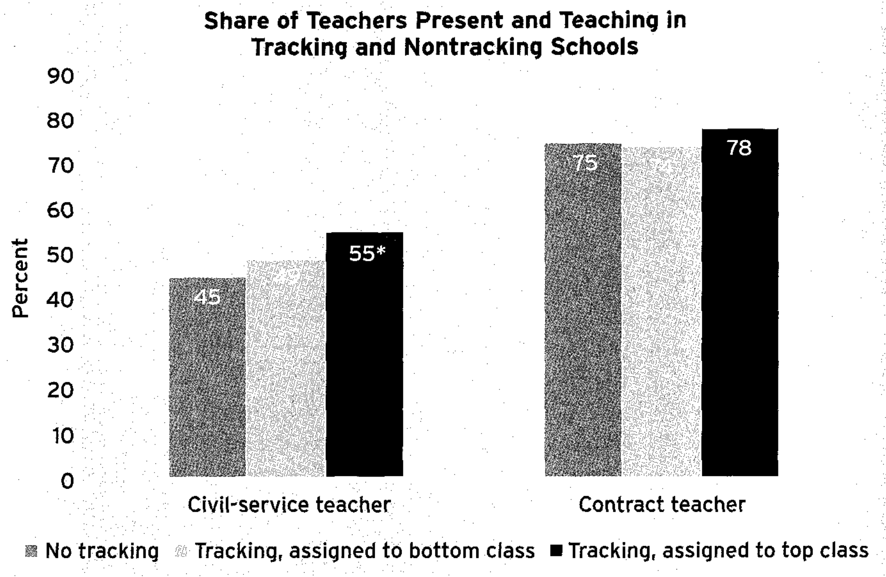
One way to examine this is to see whether children with different initial achievement levels gained from tracking

Our results show that grouping students by preparedness or prior achievement and focusing the teaching material at the most appropriate level could potentially have large positive effects with little or no additional resource cost.

differentially in terms of the difficulty of the material that they learned. While the results for language are mixed, the estimates for math suggest that, although the total effect of tracking on children in the bottom class is significantly positive for all levels of difficulty, these children gained from tracking more than other students on the easier questions and less on the more-difficult questions. Conversely, students assigned to the top class benefited less on the easier questions, and more on the more-difficult questions. In fact, they did not significantly benefit from tracking for the easier questions, but they did significantly benefit from it for the more-difficult questions. These results suggest that tracking helped by giving teachers the opportunity to focus on the competencies that children were not mastering.

Teacher Commitment (Figure 2)

Contract teachers in both tracking and nontracking schools were much more likely to be present and teaching than their civil-service counterparts, but tracking increased attendance and effort by a statistically significant amount for civil-service teachers assigned to the top class.



Share of Teachers Present and Teaching in Tracking and Nontracking Schools

Note: * indicates that the difference between levels in tracking and nontracking schools is statistically significant at the 10 percent level.

SOURCE: Authors' calculations

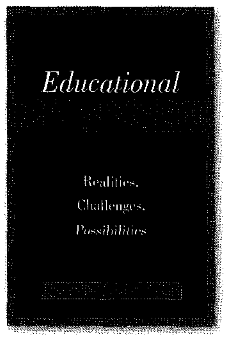
Conclusion

A central challenge of education systems in developing countries—the context for which our results are most relevant—is that students in the same grades and classrooms are extremely diverse. Our results show that grouping students by preparedness or prior achievement and focusing the teaching material at the most appropriate level could potentially have large positive effects with little or no additional resource cost. One could also target more resources to the weaker group, further helping them to catch up with their more-advanced counterparts. It is often suggested that there is a trade-off between the value of targeting resources to weaker students, and the costs imposed on them by separating them from stronger students. We find no evidence for such a trade-off in this context.

Our results may also have implications for debates over school choice and voucher systems. A common criticism of such programs is that they may hurt some students if they lead to increased sorting of students by initial achievement and if all students benefit from having peers with higher initial achievement. If tracking is indeed beneficial, this is less of a concern.

Esther Duflo is professor of economics at the Massachusetts Institute of Technology. Pascaline Dupas is assistant professor of economics at University of California, Los Angeles. Michael Kremer is professor of economics at Harvard University.

PUBLICATIONS BY FREDERICK M. HESS



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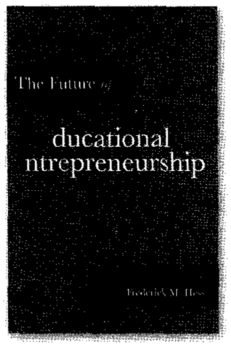
EDUCATIONAL ENTREPRENEURSHIP

REALITIES, CHALLENGES, POSSIBILITIES

Harvard Education Press, 2006

Though entrepreneurs in K-12 education are gradually remaking the structure of American schooling, the topic has received surprisingly little serious or systematic attention. Most accounts of their work either celebrate successes or bemoan excesses, and seldom do observers stop to examine the challenges and opportunities in store. This collection of essays fills this gap, addressing a number of central questions: *What is educational entrepreneurship? Who are the educational entrepreneurs and what motivates them? What policies or practices enable or impede entrepreneurship?* A range of contributors offer pieces on the nature of educational entrepreneurship; the political, policy, and legal landscapes facing entrepreneurs; various models of entrepreneurial activity; the role of for-profit organizations; and possible future directions for educational entrepreneurs. The result is a lively, provocative book that introduces this expanding field to readers concerned with K-12 education—and with efforts to reform and improve it.



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THE FUTURE OF EDUCATIONAL ENTREPRENEURSHIP

POSSIBILITIES FOR SCHOOL REFORM

Harvard Education Press, 2008

This volume examines the challenge of creating innovative and productive entrepreneurial activity in American education. In the course of exploring these challenges, the book considers a number of crucial issues and circumstances: existing "barriers to entry" that prohibit or obstruct entrepreneurial efforts; the availability—and frequent lack—of venture capital for fueling entrepreneurial activities; the effort to sponsor and create a sufficiently large population of talented educational entrepreneurs; and questions about research, development, and quality control in the burgeoning entrepreneurial sector. A field that is likely to grow in size and importance in the years to come, educational entrepreneurship receives much-needed attention, analysis, and elucidation in this lively, wide-ranging book.

SPRING 2010

EDUCATIONAL INNOVATION AND PHILADELPHIA'S SCHOOL OF THE FUTURE

Forthcoming from Harvard Education Press, 2010

Grand claims about the transformative power of technology in education are common, but decades of school redesign have yielded mixed results. One of the most widely acclaimed efforts has been the School of the Future in the Philadelphia School District, created in 2006 through a partnership with the Microsoft Corporation. This $63 million school incorporated new technologies in areas such as data and curriculum management, virtual simulations and mentoring, and personalized instruction intended to fundamentally change how students learn. A team of analysts will explore how this pioneering effort is unfolding on the ground and the lessons it holds for the use of technology and high school redesign. Research will examine key elements of the School of the Future—including its genesis, design, and flaws—and broader questions of educational innovation, public-private partnerships, and the integration of technology in the classroom.

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book review

Young People Are All Right

The problem is adolescence

The Dumbest Generation: How the Digital Age Stupefies Young Americans and Jeopardizes Our Future

by Mark Bauerlein

Jeremy P. Tarcher/Penguin 2008, $24.95; 272 pages.

As reviewed by Ted Kolderie

The Dumbest Generation is an assault on people under 30. In chapter after chapter, the author, a professor of English at Emory University, rails at how little they know, how little they read, and how their fascination with screens (television and computer) fails to produce learning. What they write is full of "bad grammar, teen colloquialisms and shallow ironies." Books are losing out. Unlike many, the author worries about the consequences less for the country's economic future than for its intellectual future. "We need a steady stream...of strong military leaders and wise political leaders, dedicated journalists and demanding teachers, judges and muckrakers, scholars and critics and artists." The problem is not so much school as it is what young people do in their private time: their "social and leisure dispositions are killing the culture, and when they turn 40 and realize what they failed to learn it will be too late."

Bauerlein is even angrier with the "digital enthusiasts," who equate an interest in the new media with learning, "the custodians of culture...the teachers, professors, writers, journalists, intellectuals who will not insist upon the value of knowledge and tradition." And he is especially angry with those who tell young people they are a wonderful generation, the vanguard of a new literacy.

Surely not all young people are Zipper Harris in *Doonesbury*. Perhaps medieval scholastics felt the same way about printing.

But let's stipulate the behavior he describes, even its consequences. Let's agree that the digital age does stupefy young Americans, that it does jeopardize our future, and that teenagers are ignorant, unaccomplished, and unengaged except in their friends, music, clothes, and digital devices.

What to do? Well, we might start with a question Bauerlein does not ask: Is the problem with adolescents or with adolescence?

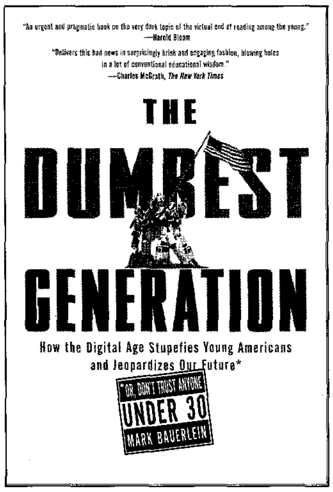
Psychologist Robert Epstein, at the University of California San Diego, in *The Case Against Adolescence*, agrees about the moronic behavior of many teenagers. But he explains: Adolescence infantilizes young people. Deny them serious responsibilities, keep them out of real work, give them virtually no contact with adults, tell them they have no function except to be schooled...why wouldn't they behave as they do?

Sheldon White, while professor of psychology at Harvard, described adolescence as "a separate society" for the young, prolonging childhood. It was created by a coming together of the child-labor laws 100 years ago, the new high schools, and special legislation for juvenile offenders. After 1950 its effects were compounded by the shift public-opinion analyst Daniel Yankelovich details in *New Rules* from the ethic of self-denial to the ethic of self-fulfillment. So many people had so much money it was impossible to say "No" to cars, clothes, guitars, computers. No wonder youth behavior changed dramatically. Adults imposed new rules, which bred resistance and defiance, which produced still more restrictions. Curfews. Can't drive. Can't drink. "No entry except with adult." Blocked access to the Internet. Criminalize sex under 18. No cigarettes. Dress codes. "Parental consent required." And in school, metal detectors, video surveillance, armed guards, and No Cell Phones!

"Our high schools used to be filled with children," Mary Lee Fitzgerald said in July 1999 while directing education programs for the Wallace Foundation. "Today they're filled with people who are essentially adults—being treated still as children." Young people are not challenged with serious responsibilities. Instead, they are told, education is the way up. The world of work is closed until you have the credentials. So study hard. Yet the schooling we offer is one that most find neither motivating nor relevant, offering them little say in what they study or how they learn or in the way their school runs.

When challenged, young people can perform impressively. Writing about the years 1815 to 1830, Paul Johnson described in *The Birth of the Modern* the remarkable accomplishments of teenagers from truly disadvantaged backgrounds. With little formal education they started work early and, importantly, were allowed to rise as fast as their abilities would take them. Michael Faraday, the scientist, "was born poor, son of a blacksmith. He had only a few years at a school for the poor, but as a bookbinder's apprentice he read the works he bound." Henry Maudsley, "perhaps the greatest of all the machine-tool inventors, began work at 12 as a powder-monkey in a cartridge works." Matthew Murray, "the great engine designer, began as a kitchen boy and butler."

In *The Maritime History of Massachusetts 1783–1860*, Samuel Eliot


"An urgent and pragmatic book on the very dark topic of the virtual end of reading among the young."
—Harold Bloom
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THE
DUMBEST
GENERATION
How the Digital Age Stupefies Young Americans and Jeopardizes Our Future*
*OR, DON'T TRUST ANYONE
UNDER 30
MARK BAUERLEIN

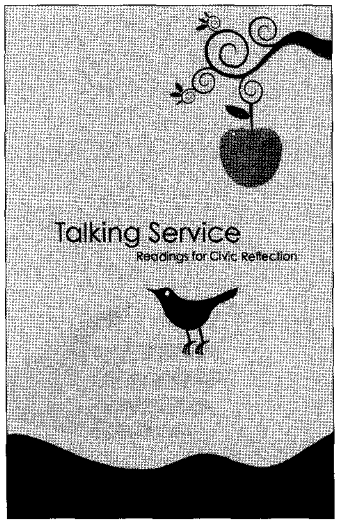
Morison writes about Mary Patten, wife of the captain of a clipper ship. "In 1858 on a voyage around Cape Horn, her husband fell ill. The first mate was in irons for insubordination; the second mate was ignorant of navigation. Mrs. Patten had made herself mistress of the art of navigation during a previous voyage. She took command, and for 52 days she navigated the ship of 1800 tons, tending her husband the while, and took both safely into San Francisco." She was 19.

Bauerlein almost gets there. "Young Americans are no less intelligent, motivated, ambitious and sensitive than ever.... It's not the under-30s who have changed...(but) the threshold into adulthood, the rituals minors undergo to become responsible citizens, the knowledge and skill activities that bring maturity and understanding." The digital realm could aid in that, he says, "but not the way young people use it. The popular digital practices of teens and 20-year-olds...close the doors to maturity, eroding habits of the classroom..." But he proposes no changes in school or in society to offer them serious responsibilities for learning and for life. His remedy is essentially to take young people by the shoulders and shake 'em until they come to their senses about the need to be serious in school, to read books, and to think. And here we come to the issue. This is what many in the policy discussion favor and seem to believe will work.

The other approach is what Epstein proposes: Move the young people who can demonstrate maturity into adult life. Epstein would let them "test out" of adolescence. John Goodlad years ago suggested ending high school at age 16. Minnesota now has schools in which young people make more decisions, individually about the pace and nature of their learning and collectively about the rules by which their school runs. Get beyond the technology of teacher instruction; let students explore the world of organized information now available digitally, with teachers as their guides. Let them do real work, for money and for academic credit.

The education policy discussion needs to consider all this because, as White noted, school is part of the institution of adolescence. Almost certainly this country could be getting far more from its young people than it is. We know how to design and run schools that treat young people as adults. These exist. They work. But they are marginalized by a policy discussion that is locked into narrow conceptions of learning and of achievement and into a concept of adolescence it does not even think to question.

Ted Kolderie is senior associate with Education|Evolving.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It Takes a Community

A safety net grows in Harlem

Whatever It Takes: Geoffrey Canada's Quest to Change Harlem and America

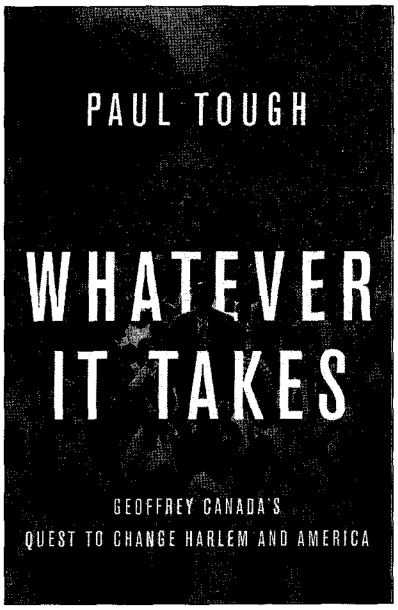
By Paul Tough

Houghton Mifflin, 2008, $26; 296 pages.

As reviewed by Cara Spitalewitz

"The clock is ticking," Geoffrey Canada, founder of the Harlem Children's Zone, tells *New York Times Magazine* editor Paul Tough. He is referring to the necessity that Promise Academy Charter School deliver satisfactory citywide test results to its board of trustees. But he is also referring to something much larger: the urgent need to save our nation's poor children. "We better do something *today* to save these kids," he says. "We want to be able to talk about how you save kids by the tens of thousands, because that's how we're losing them. We're losing kids by the tens of thousands." Canada's sense of urgency is palpable throughout Tough's *Whatever It Takes*, a breathless account of Canada's attempt to transform the lives of some 7,500 children inhabiting 97 blocks of Harlem.

Canada's goal is to create what he conceives of as a web of supports. By changing every aspect of a poor child's life—schools, families, neighborhoods—he believes that the Harlem Children's Zone can give youngsters the resources they need to succeed when all odds are against them. Since he founded the Harlem Children's Zone as a one-block experiment in 1997, he has expanded it to include parenting classes (Baby College and Three-Year-Old Journey), a full-day preschool (Harlem Gems), two elementary schools (Promise Academy I and II), and a middle school (Promise Academy). He also has created afterschool programs for each developmental stage, public health initiatives targeting asthma and obesity, and guidance programs for adolescents transitioning into college or employment.



Canada makes it clear that eradicating poverty is a science and that a broad swath of Harlem is his laboratory

If children receive the appropriate interventions at each stage of life, Canada argues, they will be able to remain on a "conveyor belt" that will eventually lead to college and entrance into the middle class. To use another of his metaphors, their success at each stage will "contaminate" the neighborhood; if enough children receive the same positive messages about education, these messages will become normative, and self-improvement will become a realistic goal.

For Canada's conveyor belt to be most effective, children need to get onto it early, even before birth. One of the major focuses of *Whatever It Takes* is early intervention, a movement that Canada initially found to be "invisible" above 110th Street. Several of Canada's programs therefore target the 0–3 set and their parents, and Tough cites a number of research studies highlighting how parenting practices can influence early cognitive skill development (and how these outcomes can be measured by brain scans).

Canada makes it clear that eradicating poverty is a *science* and that a broad swath of Harlem is his laboratory: there are methods and techniques that will work, and he will implement and manipulate them methodically until they do. At the same time, Canada insists that early intervention is only one piece of his strategy. Even if science suggests otherwise, he refuses to give up on children who got onto the conveyor belt too late. Similarly, although he stresses that parents are invaluable to childhood development, he refuses to allow disengaged parents to be used as an excuse for their children's failure.

Tough has been interviewing and observing Canada for five years, and his knowledge of the inner workings of Canada's programs and the ideas driving them is striking. He provides overviews of the current research on early intervention as well as the evolution of poverty theory, from the controversy surrounding the 1965 Moynihan report to the debate between sociologist William Julius Wilson and political scientist Charles Murray about the root causes of poverty.

Although a varied and massive array of programs comprise the Harlem

Children's Zone, its charter schools have garnered perhaps the most attention, particularly in the context of controversial New York City school reforms and the larger conversation in the education world about high-stakes tests, charters, and No Child Left Behind.

Tough presents particularly compelling narratives about the progress of one Promise Academy elementary school and the middle school, the former achieving dramatic increases in test scores, and the latter temporarily closing its doors to new students as a result of poor (albeit improving) performance. He offers a glimpse of the challenges and frustrations in the middle school with a scene from a sixth-grade math class that stretches on for pages. It takes students the majority of a class period to figure out how to read aloud a 12-digit number written on the blackboard.

The question among policymakers, of course, is how to quantify the successes and failures of Canada's experiment. Tough mentions a lack of hard data proving the effectiveness of some of the Harlem Children's Zone programs. We have Promise Academy test scores and anecdotal evidence about Baby College, he notes, but we do not know how well the other programs that make up Canada's safety net are working.

However, the data from the schools are a strong interim measure of success: 97 and 100 percent of the 3rd graders at Canada's two elementary schools performed at grade level on the state math test in 2008. Although 3rd-grade reading scores were lower—68 and 81 percent proficiency—the numbers still topped the citywide average.

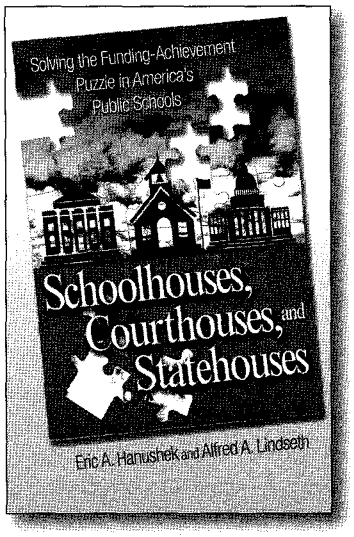
How much of this academic success is due to instruction? How much influence do the other safety-net programs have? Roland Fryer, a Harvard University economist, is currently looking at longitudinal data in order to disaggregate the various factors contributing to the success of the Zone's children.

This research will be particularly useful in attempts to replicate the program. In one of his campaign speeches, President Barack Obama declared his intention to implement the Harlem Children's Zone model in 20 cities nationwide. Elementary school test scores indicate that it is a promising experiment worthy of replication. As policymakers incorporate ongoing program evaluation and extensive data collection into each new Zone in each new city, we will learn more about the generalizability of the model.

Tough covers a great deal of ground, but what runs through all of his reporting is Canada's staunch pragmatism. As competing education manifestos vie for policymakers' allegiance, "which side are you on?" distressingly seems to be a more important question for many than "what works?" Canada, along with U.S. Secretary of Education Arne Duncan, is one of the few education leaders to have signed *both* manifestos. Who can focus on philosophical debates when we are losing children by the tens of thousands?

What makes Canada's approach so refreshing is that he does not seek to align himself with one set of policy prescriptions or the other; instead, he picks and chooses from each. For Canada, schools can't do everything on their own, but they can do a lot more than they are doing now. For those who still seek to categorize him as a supporter of one side of the debate or the other, the answer is he is for both. He is for *Whatever It Takes.* The clock is ticking.

Cara Spitalewitz is an Urban Scholar at the Harvard Graduate School of Education.


Solving the Funding-Achievement Puzzle in America's Public Schools
Schoolhouses, Courthouses, and Statehouses
Eric A. Hanushek and Alfred A. Lindseth

Schoolhouses, Courthouses, and Statehouses

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Eric A. Hanushek & Alfred A. Lindseth

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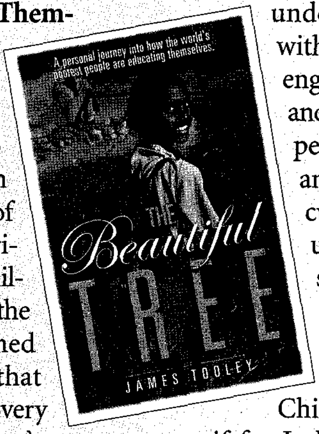
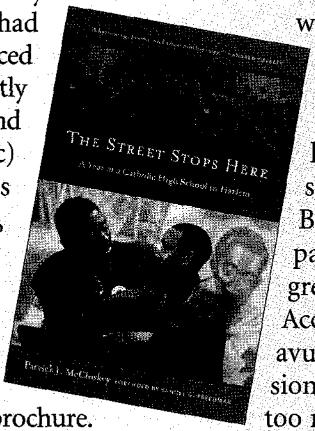
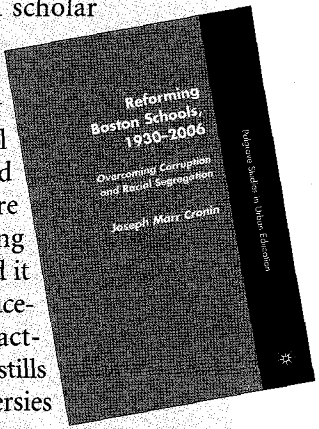

A personal journey into how the world's poorest people are educating themselves.
The Beautiful Tree
James Tooley

The Beautiful Tree: A Personal Journey into How the World's Poorest People Are Educating Themselves. James Tooley (CATO Institute).
James Tooley, the eminent British scholar who introduced the Western world to the thousands of "six dollar a month" private schools that serve millions of poor families in the third world, has penned an important book that recounts his own discovery of these schools, why they're important, and what lessons might be drawn from them.

Most educators, international development experts, and aid organizations assume that education for all but the rich can only be provided by government, especially in poor regions. Tooley proves them wrong and isn't afraid to note the failure of public schooling in many such places. With the World Bank documenting that in vast tracts of India on any given day, one public-school classroom in five has no teacher present, parents craving an education for their kids must look to other providers. In India, but also in China, Africa, the Philippines, and beyond, Tooley found private entrepreneurs educating enormous numbers of children at modest fees that are within the reach of most families, and in schools that typically best the government's offerings in integrity, efficiency, and quality. "In the fissures of crumbling public education systems," he writes, "a vibrant and confident education industry is beginning to emerge. It is serving the poor as well as the rich. It is bringing much higher standards than appear possible under public education. And with judicious support, it can engage to meet the needs of all, and can innovate through competition to improve teaching and learning and expand the curriculum, in ways that are unimaginable under public systems....My hunch...is that the educational enterprise will go from strength to strength in India and China, and in Africa too. And if for India, why not for us?" Why not, indeed?



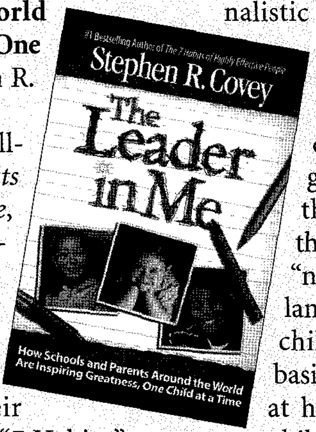
The Street Stops Here: A Year at a Catholic High School in Harlem. Patrick J. McCloskey (University of California Press).
With inner-city Catholic schools closing by the dozens due to financial pressures, this timely book offers a vivid reminder of what is being lost. Journalist Patrick McCloskey spent the 1999–00 school year embedded at Rice High School, an all-boys school in Harlem whose initially white student body had long since been replaced by the predominantly African American (and mostly non-Catholic) young men it serves today. The result, unlike many in-the-trenches accounts of high-performing urban schools, will not be confused with an advertising brochure. McCloskey candidly, if empathetically, describes the challenges the school faces and its occasional failures alongside its undeniable successes. But no one who reads his book will remain untroubled by news that yet another Catholic school has shuttered its doors.


Reforming Boston Schools, 1930–2006
Overcoming Corruption and Racial Segregation
Joseph Marr Cronin
Palgrave Studies in Urban Education

Reforming Boston Schools, 1930–2006: Overcoming Corruption and Racial Segregation. Joseph M. Cronin (Palgrave).
No one has a better feel for the political history of the Boston schools than Joseph Cronin, a scholar and administrator who has spent a lifetime acutely observing the school system's life and times, fully aware that its governing committee treated it mainly as a job-placement firm. His fact-packed account distills the racial controversies of the sixties and concludes with two full chapters on Boston's teachers and their union with the following assessment: "Teacher negotiations generally retard the pace of urban school reform." The book's best line exemplifies the dry humor sprinkled throughout: "New Boston school custodians were paid as much as teachers and grew better paid with seniority." Accordingly, the tone is more an avuncular chronicle than a passionate critique. Cronin has seen too many education disasters over the decades to become too disturbed

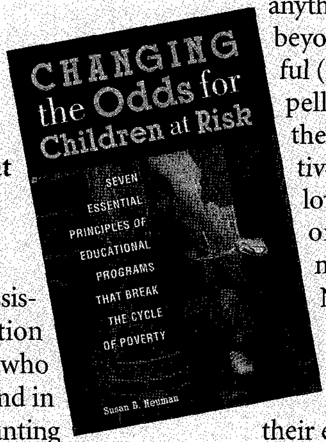
about Boston's current situation. "The Boston schools have work to do but are on the path to revival," he assures us, not very convincingly.

The Leader in Me: How Schools and Parents Around the World Are Inspiring Greatness, One Child at a Time. Stephen R. Covey (Free Press).


#1 Bestselling Author of The 7 Habits of Highly Effective People
Stephen R. Covey
The Leader in Me
How Schools and Parents Around the World Are Inspiring Greatness, One Child at a Time

Steven R. Covey, best-selling author of *The 7 Habits of Highly Effective People*, wrote this book to promote the efforts of principals around the globe who are preparing children for the 21st century by organizing their schools around Covey's "7 Habits," a sort of accidental comprehensive school-reform model created by fans. This book tells the story of the first such school, launched by Muriel Summers, an elementary-school principal from North Carolina. Summers believes (as does Covey) that factual knowledge is no longer the key to success, and that the 21st century will reward those who are creative and have strong people skills. She wanted to run a school that would teach kids what Covey calls leadership: taking responsibility for their actions, working with others more effectively, managing their time more efficiently, and doing the right thing. Summers surveyed teachers, parents, and the local business community and found that these basic life skills were what everyone most wanted kids to get out of school, not academics, so she changed the theme of her school to leadership, 7 Habits–style. Summers's school (like the other leadership-themed schools described in the book) is a funny mix of progressive (lots of teamwork and decisionmaking activities) and paternalistic (students learn catchy songs emphasizing the 7 Habits and keep notebooks, graphs, charts, and diagrams showing their goals and the progress they are making toward them). Like the founders of "no excuses" schools, Covey laments the fact that today's children are not learning basic character and life skills at home or in church. But while today's high-achieving schools for low-income students (Knowledge Is Power Program [KIPP], for instance) are passionate about cultivating both character and traditional academic skills, schools built around the 7 Habits are focused on training confident kids who are good at planning, goal setting, and decisionmaking.

Changing the Odds for Children at Risk: Seven Essential Principles of Educational Programs That Break the Cycle of Poverty. Susan B. Neuman (Praeger Publishers).


CHANGING the Odds for Children at Risk
SEVEN ESSENTIAL PRINCIPLES OF EDUCATIONAL PROGRAMS THAT BREAK THE CYCLE OF POVERTY
Susan B. Neuman

Susan Neuman is a former assistant U.S. secretary of education in the Bush administration who has enjoyed a bit of fame (and in some circles, infamy) for recanting her support for No Child Left Behind. In this book, as in other venues, she argues that not only is that law an imperfect piece of legislation, but its target is off the mark. If policymakers really want to close achievement gaps between rich and poor students, she writes, they should stop focusing on schools and start paying attention to what happens before children ever get to kindergarten. "Good schools can go a long way toward helping poor children achieve better, but the fact remains that educational inequity is rooted in economic problems and social pathologies too deep to be overcome by schools alone." Such rhetoric will cheer fans of the "Broader, Bolder Approach to Education," a manifesto published last year by the liberal Economic Policy Institute, which Neuman has signed and promoted. But the book itself doesn't so much argue against school reform as highlight promising interventions for the under-five set, from prenatal care for poor mothers to rigorous preschool programs. As such, it doesn't offer anything particularly fresh, beyond Neuman's cheerful (and sometimes compelling) descriptions of the best of these initiatives in action. There's a lot of do-gooding going on, no doubt, but nobody (including Neuman) has figured out how to bring these programs to scale and maintain their efficacy.

BROOKINGS
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When Mayors
Take Charge
School Governance in the City
Joseph P. Viteritti, ed.

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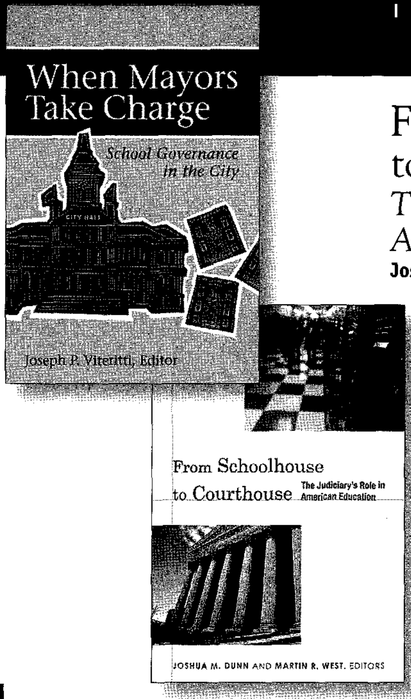
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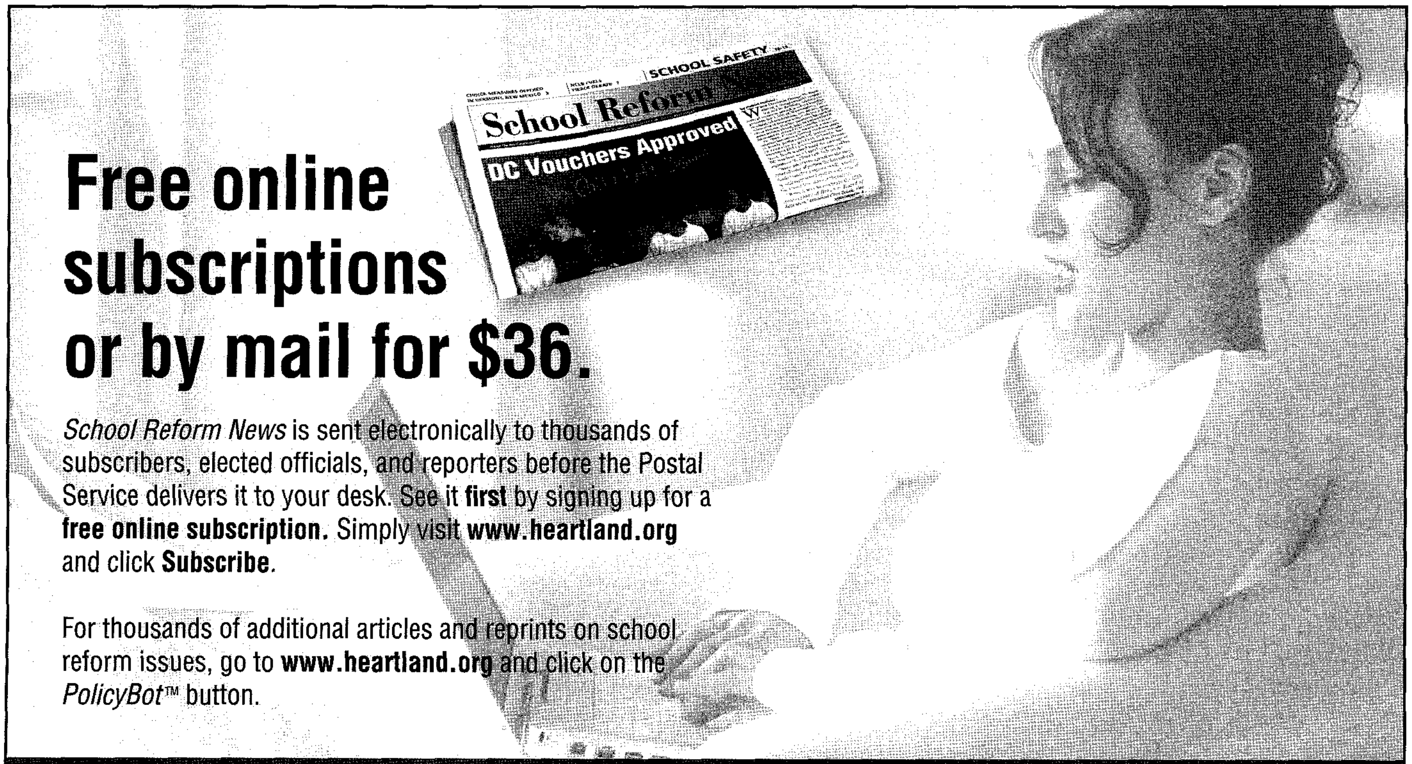
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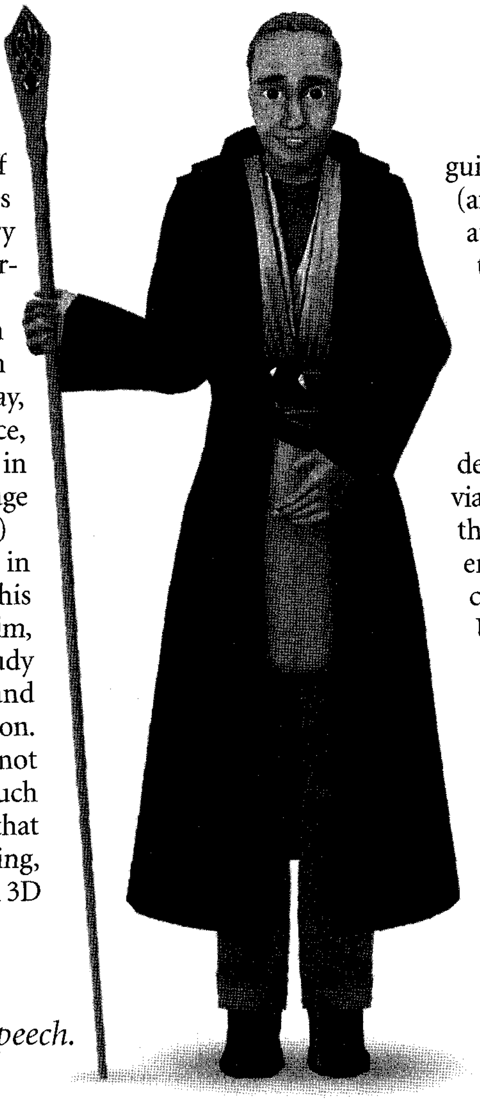
Full Immersion 2025

How will 10-year-olds learn?

BY GERALD HUFF AND BROR SAXBERG



Imagining life far off in the future is the stuff of science fiction. Imagining life a few decades from now, however, is a subject of serious inquiry for military strategists, urban planners, and marketers. Why not for educators?

In the following pages, we sketch a vision of learning that may seem "gee whiz" but which is grounded in technologies—for visual display, interaction, content creation, learning science, virtual reality, and more—that exist or are in development today. (See Technology Notes, page 83, for a sample of companies and products.)

We envision 10-year-old Jevon learning, in his home, a history lesson that is suited to his learning level yet has the capacity to challenge him, creates opportunities for interdisciplinary study of critically important content and skills, and encourages independent thinking and exploration. This 2025 immersive learning environment is not unlike interactive globally connected games such as World of Warcraft, Second Life, and others that today engage children and teens in roleplaying, strategizing, and mock battles. Students in each 3D world speak, type, touch the screen, and use handheld controllers to explore and become part of the eras and subjects they study, interacting with real and synthetic people, places, and scenes.

Within a wide array of these worlds, learners master common core sets of objectives at a pace that suits them, guided and encouraged by an avatar (an appealing virtual character operated by a computer) who engages the student in ongoing conversation. In our example, Jevon has fashioned his teacher avatar from a character named "Yoda" he had seen in an old movie.

As they work to mastery, students can explore related side topics via hyperlinks and interactions, while the pacing and guidance systems ensure a complete curriculum is covered in an effective sequence. Using the tools of artificial intelligence together with data gathered from watching this learner and millions of others, the system over time comes to "understand" the style, capability, and learning history of each student, and uses that understanding to adjust activities and pacing.

Yoda: *Good morning, Jevon.*

Jevon: *I'd like to get back to Dr. King's speech.*

Yoda: *Very well.*

Dr. Martin Luther King Jr.: *Now is the time to make real the promises of democracy. Now is the time to rise from the dark and desolate valley of segregation to the sunlit path of racial justice...*

Jevon's Experience

Regardless of students' physical location, they can learn with friends and peers from around the world. Yan, an 11-year-old girl from a city near Beijing, China, joins Jevon as he listens to Dr. Martin Luther King Jr. deliver his "I Have a Dream" speech. Automatic language translation enables the two students to interact in real time. Jevon and Yan position themselves in the crowd to converse with virtual characters in the audience. On the next page, we continue the dialogue, imagining how Jevon and Yan might interact with each other,

ILLUSTRATION / W/, CODEBABY

Jevon and Yan position themselves in the crowd to converse with virtual characters in the audience. They stand next to a man holding a sign that says WE MARCH FOR FREEDOM.

Jevon and Yan: Good morning.

Gentleman #1: Indeed it is.

Jevon: What does your sign mean?

Gentleman #1: Negroes are not truly free in this country. Where I live in Selma, Alabama, there are laws that keep us down, keep us apart. These Jim Crow laws say I can't go to certain restaurants or stay in hotels. So that's why I'm marching today, to send a message that we cannot be truly free until the injustice ends.

Jevon: But, Yoda, why did they have Jim Crow laws? I don't understand.

Yoda: Remember, there was a history of slavery in the United States, and blacks were treated as property.

Jevon: Yoda, take us back to the speech, please.

Dr. King: We must not allow our creative protest to degenerate into physical violence.

A man next to Jevon grunts some disapproval.

Jevon: Don't you agree with Dr. King?

Gentleman #2: No, young man, I do not. The only thing the whites understand is force, the force they use against us.

Jevon: Yan, what do you think about using nonviolence to protest?

Yan: I'm not sure. I can see both sides of the argument.

Jevon: Yeah, but when you know you can't ever really beat the other guys with force, it seems like nonviolence makes sense.

Yan: It's just really hard to take the abuse and not fight back.

Jevon: I know. It's amazing that so many did it.

When the speech and activity conclude, Yan's avatar waves goodbye and Yoda guides Jevon through a lesson in math.

Yoda: Jevon, how many people do you think were in the crowd that day?

Jevon: Ten thousand?

Yoda: You're guessing. How would you make an estimate?

Jevon: I can't just count them all.

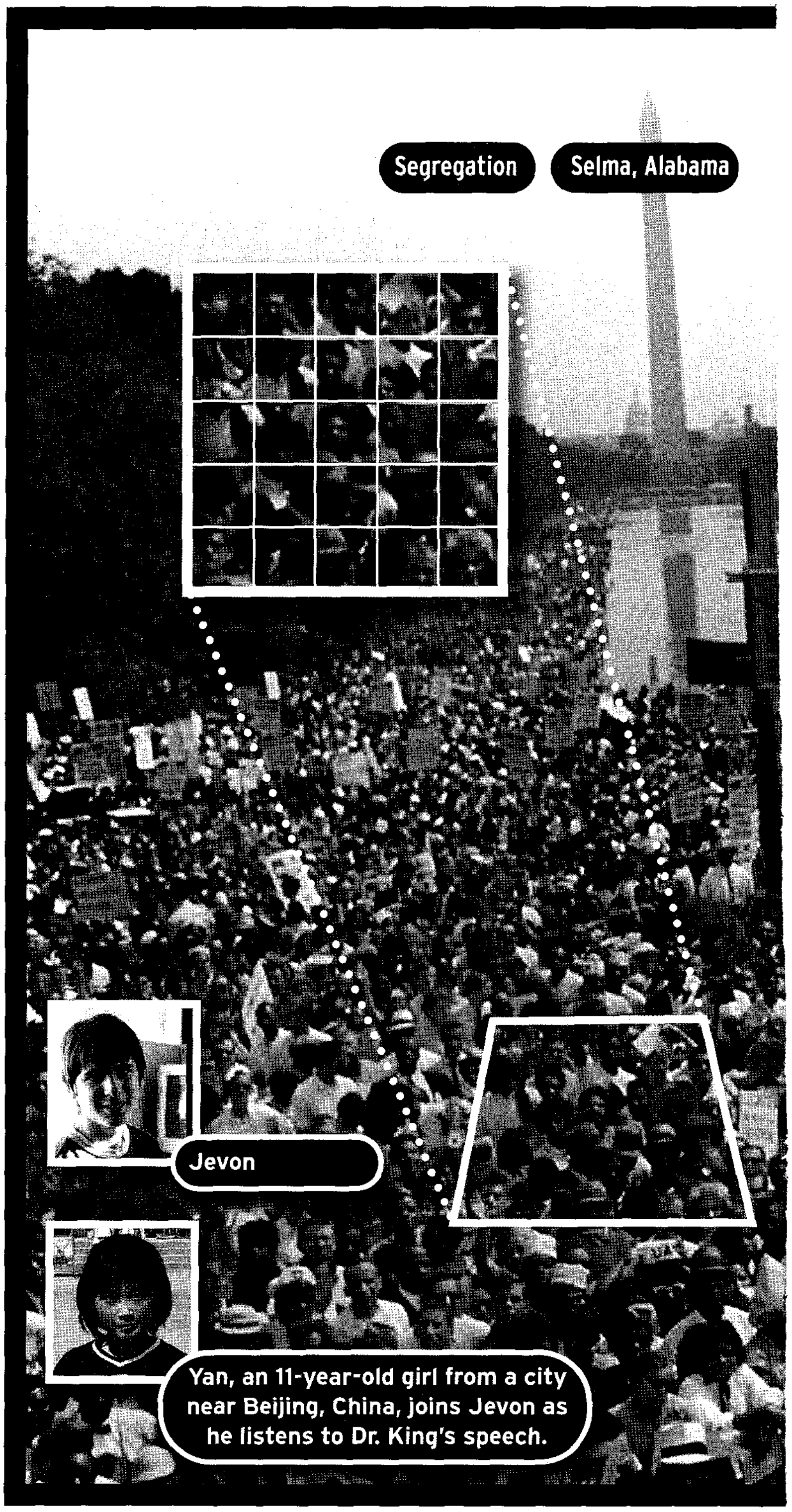
Yoda: What about using a grid?

Jevon: Ah, thanks for the hint. This is like that science lesson where we estimated how many flowers were in a field. Let's see, we've got about 50 by 30, that's 1,500 grids times 100 people per grid is, uh, 150 thousand people.

Yoda: Not bad. How could you improve the estimate?

Jevon: If we counted inside more grids and took the average?

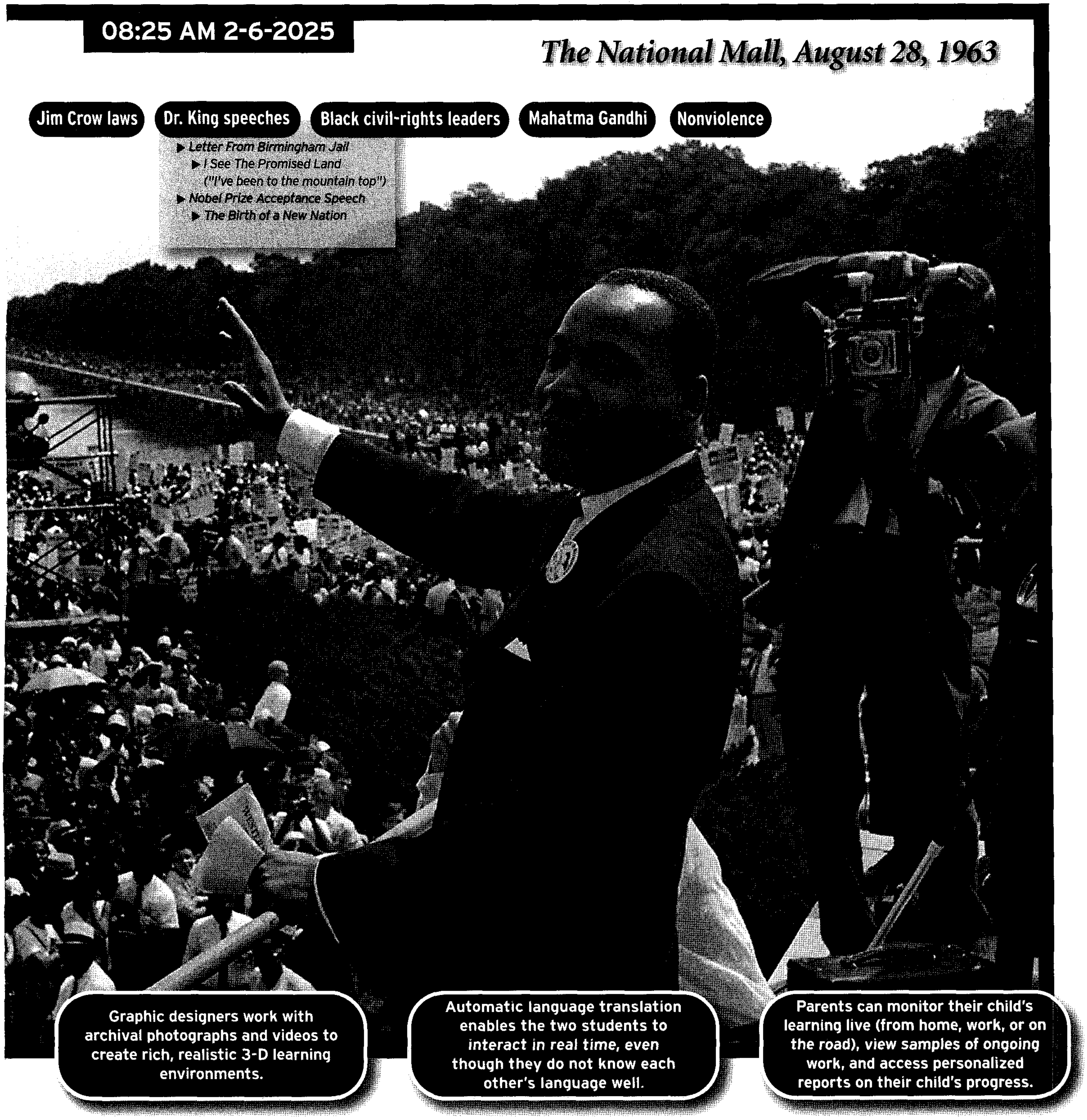
Yoda: That's right!



Yan, an 11-year-old girl from a city near Beijing, China, joins Jevon as he listens to Dr. King's speech.

with characters from the history they are studying, and with the teaching avatar Yoda.

After one set of objectives has been met, the system can use the same 3-D environment for other goals, such as learning to estimate. Any single objective can appear in many contexts, promoting creative and flexible triggering of ideas and skills, exactly how instructional expertise is supposed to benefit learners in the real world.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The National Mall, August 28, 1963
Jim Crow laws
Dr. King speeches
Black civil-rights leaders
Mahatma Gandhi
Nonviolence
▶ Letter From Birmingham Jail
▶ I See The Promised Land ("I've been to the mountain top")
▶ Nobel Prize Acceptance Speech
▶ The Birth of a New Nation

Graphic designers work with archival photographs and videos to create rich, realistic 3-D learning environments.

Automatic language translation enables the two students to interact *in real time*, even though they do not know each other's language well.

Parents can monitor their child's learning live (from home, work, or on the road), view samples of ongoing work, and access personalized reports on their child's progress.

Students can work together via webcam and avatar, all monitored and recorded for security and analysis. They can work in groups of a particular age or learning level, sharing and manipulating materials together, discussing what they are learning. The use of avatars may ease the potential awkwardness of a particularly advanced 10-year-old, for example, working with older students in some subjects.

The system can be accessed anytime. Younger children, teenagers, and adults all have different sleep and learning cycles; a teenager may prefer literature discussions at 4 PM and math at 11 PM. There will always be countless students available for collaboration.

Periodically, depending on Jevon's progress and needs, an educator-advisor or academic "coach" spends time reviewing his results, monitoring his system usage (perhaps

Technology Notes

Growing understanding about how students learn, together with technologies that are already engaging children and technologies in development, such as those listed below, will enable educators to customize each child's experience to optimize learning.

Multitouch Displays: Microsoft Surface is planning to start with commercial applications but head for the home.
www.microsoft.com/surface
Jeff Han from New York University has started a company to market his wall-sized multitouch displays. www.perceptivepixel.com

Telepresence: Life-sized images in high definition for video conferencing.
HP Halo. www.hp.com; Cisco TelePresence. www.cisco.com

3-D Immersive Environments: Second Life. www.secondlife.com
The Sims game (sample movie from a contest). thesims2.ea.com/contests/winners/RunnerUp_newbeginnings.wmv
World of Warcraft. www.worldofwarcraft.com/wrath/ulduar.xml

Collaborative Filtering: Google, Amazon, NetFlix, Last.fm all use such systems to analyze taste and interest data from millions of people to make more accurate recommendations. *Super Crunchers: Why Thinking-by-Numbers Is the New Way to Be Smart* by Ian Ayres reports on the "crunching" of massive amounts of data.

Natural Language Processing: Dragon NaturallySpeaking handles normal speed continuous speech dictation (converting voice into text) but does not "understand" what the speaker is saying. Truly conversational systems are still years away. www.nuance.com/naturallyspeaking

Intelligent Software: MIT Media Lab is working on "intelligent agents" that have common-sense understanding.
www.media.mit.edu/research/23
CyberTwin is marketed as a "software clone." mycybertwin.com

Converting Pictures to 3-D Virtual Spaces: Microsoft has Photosynth technology that is starting down this path. photosynth.net
UpNext generates 3-D city views from aerial photos. www.upnext.com

Educational Simulations: Henry Leitner of Harvard University presented "Innovations in Online Education: 3D Virtual Worlds, Gaming and Simulation" at the 2007 University Continuing Education Association conference. See also "Virtual Reality/Simulations" by Nicole Strangman & Tracey Hall, National Center on Accessing the General Curriculum, 2003 (paper).
www.cast.org/publications/ncac/ncac_vr.html

Immersive elearning: Minneapolis-based elearning company w/ uses avatars and 3D environments to create immersive learning courses that help businesses simulate real-world scenarios in which employees can practice selling techniques and master social situations.
www.wslash.net

targeting particularly difficult and important concepts and skills for Jevon), and sending feedback to Jevon's parents.

A System That Learns

The system leverages data from millions of learners individually experiencing thousands of learning activities each year. Similar to how today's Google, amazon.com and Last.fm work, after each of Jevon's interactions with Yoda, the system can compare his responses to those of his peers within this vast database. If Jevon had struggled with estimating the size of the crowd, the system would add this to the database. At the same time, the system would draw on information about similar learners to help Jevon master the material; the avatar would use an educator's guiding question that had helped similar students apply estimation techniques.

Driven by Educators

Educators create content and activities for the system based on the targeted skills and concepts in each subject area, what is known about how children learn (from neural imaging and studies of typical development sequences), and what is understood to be effective for teaching specific topics (from deep databases of histories organized by learner characteristics). The content is peer reviewed and field tested. As information flows in from hundreds of thousands of children, educators are able to see what activities work best for children with different learning histories, and adjust the content (who sees what, and what they do) to optimize instruction for each type of child. There is no "standard" learning sequence, although each version targets the same underlying objectives.

Beyond creating content, educators participate in various ways: reviewing student performance that the system has flagged as needing attention, giving one-on-one or one-to-many instruction, either virtually (mostly) or in person for children for whom in person learning is optimal. Teachers can take up roles within simulations or inhabit virtual tutors for specific topics; they can also manage "community time" activities, in person or virtually. Like today's busy children, learners schedule real world social interaction into the school day or week. Kids from the local area may play games and sports, practice music, or put on skits and plays.

An education system such as we have envisioned here is closer than you might think. Growing understanding about how students learn, together with technologies that are already engaging children and technologies now in development, will soon enable educators to customize each child's learning experiences to make them more enjoyable and more effective.

Gerald Huff is director of the Technology Innovation Group at Intuit, Inc. Bror Saxberg is chief learning officer at K12, Inc., a creator and manager of online learning curricula and programs serving both public and private customers.

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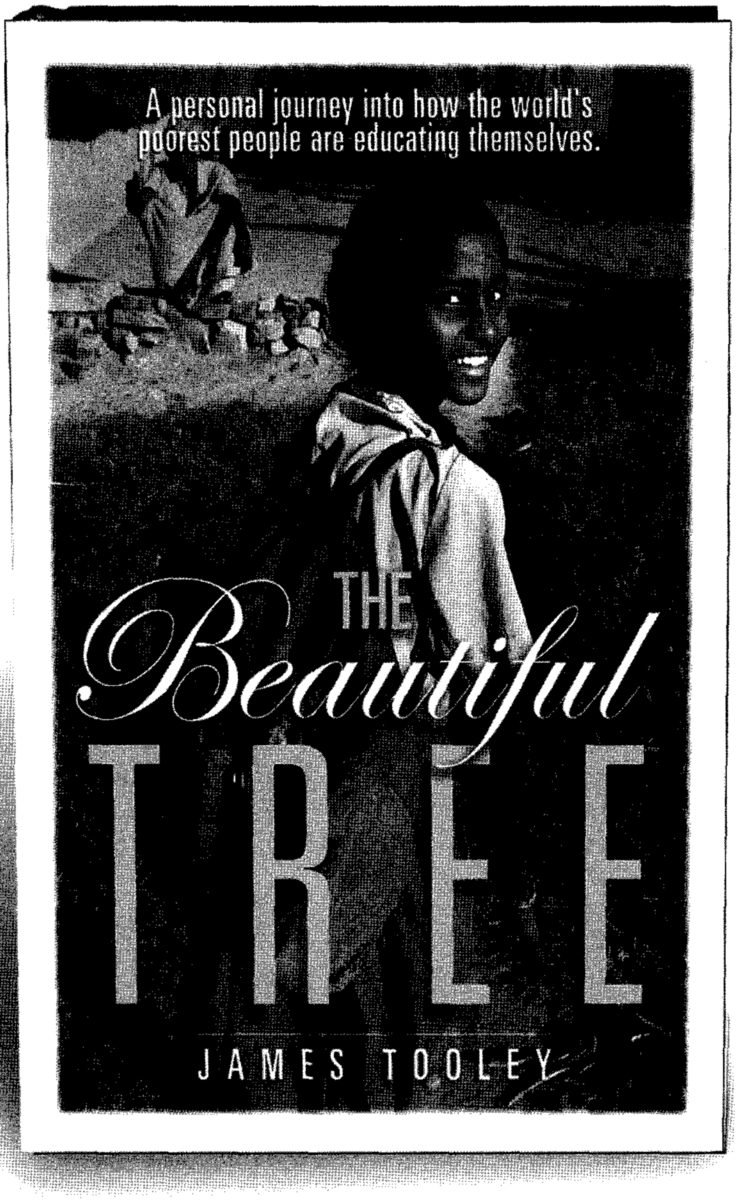

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The Why Question

Teachers can instill a sense of purpose

BY WILLIAM DAMON

A crusty high school English teacher once gave me some stern words of advice. An indifferent student at the time, I had just handed the teacher a sloppy, half-completed assignment that revealed little more than my own laziness. I offered the excuse (which, incredibly, I must have considered legitimate) that I had guessed that the assignment did not count much because it was just a weekly essay. The teacher fixed me in his fiercest gaze and said, "Mr. Damon, everything you do in this world counts." I stood there, properly abashed.

It's not that these words immediately struck me as a profound revelation or that they turned my life around that same day. But the idea that *the things I do actually matter*, even the small routine things, did sink in. I became motivated to "apply myself," in the phrase that my teachers were beseeching me with at the time. In the term that I now use in my research and writings, I gradually became more purposeful about my efforts, and my schoolwork did start to improve. What my teacher had said made a difference to my way of thinking about what I was doing in school and beyond. And it has stuck around as a kind of touchstone, decades later.

The idea that the things I do actually matter, even the small routine things, did sink in.

If you ask any teacher to list the top problems in schools today, "student motivation" will surely be among them. Yet our national priorities for education mostly ignore this concern. Indeed, with our sometimes single-minded focus on test scores, we may well be subverting the message that my English teacher offered me long ago: that it is best to be *purposeful* about whatever we do.

This is not to dispute the value of serious testing, which I support, but testing must be presented to students as a means to an end rather than an end in itself. It should never become the primary focus of classroom instruction. Not only does such a narrow focus restrict teachers' judgments about how and what students should learn, it crowds out teachers' time for discussing with students broader questions, such as what a person can and should do with academic knowledge in the world beyond school, the all-important question, What is the *purpose* of learning?

Schools must address the "why" question with students about all that they do. Why do people study math and science? Why is it important to read and write? To spell words correctly? Why have I (the teacher) chosen teaching as my occupation? Addressing this question in front of students, which unaccountably teachers rarely do, not only helps students better understand the purpose of schooling but also exposes them to a respected adult's own quest for purpose. Why do we have rules against cheating? This is a good opportunity to convey moral standards such as honesty, fairness, and integrity and is a missed opportunity in most schools, even those with strong character-education agendas. Why are you, and your fellow students, here at all?

Every part of the curriculum should be taught with the "why" question squarely in the foreground. Some believe that the humanities are especially suited for this. I have found that instruction in the sciences offers a vivid context for raising the questions why and why not. Some years ago I was given a chance to try out this idea during a summer school program for gifted students. We discussed recent research in microbiology in the context of ethical questions such as the social desirability of cloning. Students tore into their difficult scientific lessons, motivated at least in part by their appreciation of the enormous moral issues at stake.

Schools can introduce students to an equally rich array of purposeful pursuits through art, music, sports, language, theater, and other activities that have unfortunately become targets for elimination in many schools. We must be careful not to allow an intense concern with testing or any single educational objective, well-intentioned as it may be, to crowd out the activities that may best kindle the flames of learning and purpose in our students.

William Damon is professor of education at Stanford University and director of the Stanford Center on Adolescence. This essay was adapted from The Path to Purpose *(The Free Press, 2008).*

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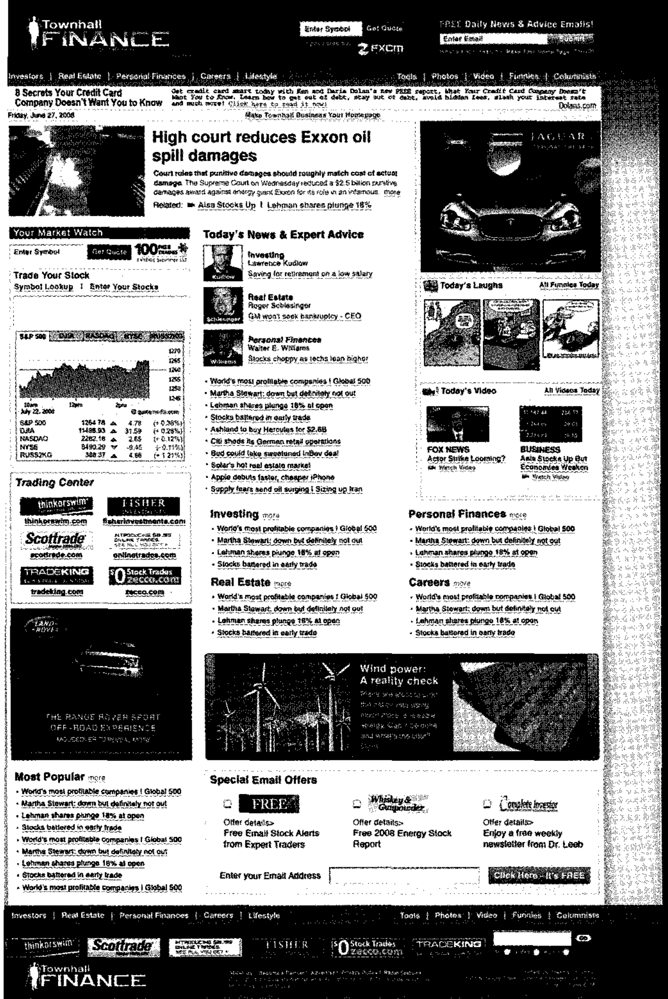

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